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AGRICULTURE

STATE OF NEW YORK

DEPARTMENT OF AGRICULTURE

TWENTY-SECOND ANNUAL REPORT

OF THE

Department of Agriculture

For the Year Ending September 30, 1914

PART III

TRANSMITTED TO THE LEGISLATURE JANUARY 15, 1915

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JANUARY 15, 1915

TWENTY-SECOND ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

PART III

To the Honorable the Legislature of the State of New York:

Pursuant to the provisions of the Agricultural Law, I herewith submit this, Part III of the Twenty-second Annual Report of the Department of Agriculture of the State of New York, for the year ending September 30, 1914.

CALVIN J. HUSON,

Commissioner of Agriculture

January 15, 1915.


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STATE OF NEW YORK
DEPARTMENT OF AGRICULTURE

CALVIN J. HUSON, Commissioner

Bulletin 58

PROCEEDINGS

OF THE

THIRTY-SEVENTH ANNUAL CONVENTION

OF THE

New York State Dairymen's Association

HELD AT

SYRACUSE

DECEMBER 9-12, 1913

Compiled by the Secretary
W. E. GRIFFITH
Madrid, N. Y.

OFFICERS OF THE ASSOCIATION, 1914.

<i>President</i>	H. C. ELWOOD.....	Buffalo, N. Y.
<i>Vice-President</i>	W. E. DANA.....	Avon, N. Y.
<i>Secretary</i>	W. E. GRIFFITH.....	Madrid, N. Y.
<i>Assistant Secretary</i>	H. E. JONES.....	Syracuse, N. Y.
<i>Treasurer</i>	R. R. KIRKLAND.....	Philadelphia, N. Y.

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W. A. STOCKING, JR.....	Ithaca, N. Y.

OFFICERS OF THE ASSOCIATION, 1913

<i>President</i>	E. H. DOLLAR.....	Heuvelton, N. Y.
<i>Vice-President</i>	H. C. ELWOOD.....	Buffalo, N. Y.
<i>Secretary</i>	W. E. GRIFFITH.....	Madrid, N. Y.
<i>Assistant Secretary</i>	H. E. JONES.....	Syracuse, N. Y.
<i>Treasurer</i>	R. R. KIRKLAND.....	Philadelphia, N. Y.

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FIRST SESSION

TUESDAY, DECEMBER 9, 8 P. M.

The Thirty-seventh Annual Convention of the New York State Dairymen's Association was called to order by President E. H. Dollar, of Heuvelton, N. Y., who complimented the members of the association on the large audience assembled and the splendid display of dairy machinery on exhibition. President Dollar directed the attention of the audience to the demonstrations to be given during the continuance of the meeting, calling attention particularly to the mechanical milkers in operation. Speaking appreciatively of the courtesies extended to the association by the people of Syracuse, he then introduced Mr. Willard Rill, President of the Syracuse Common Council, who came as the representative of the Mayor of the city.

President Rill, in extending the welcome of the city to the members, complimented the work of the association in helping New York to maintain its position as the leading dairy state of the Union. He assured the audience of the willingness of Syracuse to lend every aid and welcome to the Dairymen's Association, and assured them that it was the wish of all the citizens that the association would continue to meet in Syracuse and come to regard it as the home of the association.

President Dollar then called on Professor W. A. Stocking, Jr., of Cornell, Acting Dean of the State College of Agriculture, who replied to the address of welcome as follows:

LADIES AND GENTLEMEN: It is hardly necessary for any of us to attempt to reply to the address of welcome that has been given us by the representative of Syracuse, because we have been here often enough to know that the doors of Syracuse are open to the farmers of New York State. I have never known of so marked an illustration of hospitality in any city as Syracuse has shown during the past few years in connection with the week when the farmers of the state come here to attend the New York State Fair. It is not necessary for me to attempt to express the appreciation of this body of people to the city of Syracuse for its hospitality.

When I stand before a body of dairymen I feel at home because it is in this line of work that I am especially interested. I never see an audience of farmers of any sort without a feeling of deep respect and admiration. Agriculture in any of its phases is a deep and difficult problem. It requires more training, general knowledge and skill to be a good farmer than perhaps any other line of business activity. This is particularly so if the farmer specializes in dairying, because a man who successfully runs a dairy farm must know the fundamental principles underlying the soil and its management, the principles of plant growth, of plant-breeding, of animal breeding, the care and selection of these animals, and any man who knows the degree of perfection to which the dairy cow has attained in these days need not be reminded of the knowledge and skill that is required to develop an animal of that type. It seems to me that of all business men the successful dairy farmer stands at the head of the list.

It would be out of place for me to attempt to give to you anything relating to the details of your work. You are the men who are producing the results. You are the men who are keeping abreast with the various lines of dairy work while we at Ithaca can only attempt to keep up with one narrow line of work. There are over twenty different departments in the State College of Agriculture with a number of men in each of these departments, so that even the work of a single department is divided into smaller divisions. In the dairy department one man represents the manufacturing of cheese, another the manufacturing of butter, another the handling of market milk, and so on; none of these men can attempt to keep up with more than one or two of these lines. So, we are at a great disadvantage when we meet with those who are really keeping abreast with the practical field and are getting actual results in dairy work.

I have, however, two or three ideas that I should like to present to you in the hope that it may enable us to see the situation from a broad point of view. We hear two sides to the dairy question. We get from one group of people things which are delightful to hear. They tell us that New York is the leading dairy state in the Union; that we have the largest number of dairy cows; that the dairy products of the state are worth practically

\$78,000,000 a year; they tell us that New York produces the greatest amount of market milk of any State in the Union, some 520,000,000 gallons per year; and they end by telling us that dairy products never brought as high prices as they do at the present time. This is all true and we are proud to be dairymen in the state which ranks first.

Then we get the other point of view. We are told that the cost of producing milk now is not what it was a few years ago; that the cost of farm labor has materially increased and is sometimes impossible to secure, and that the cost of feed has gone up; that the cost of materials for building barns to house the cattle has increased, so that the expense of production now is a great deal higher than it was a few years ago. We are told that the cities through their boards of health and methods of milk inspection are raising the standards so that it is impossible any longer to produce milk at a profit. And then they say that the price of milk is too low and that we can not make any money from our dairy products. A large part of this is also true. So we have two views of the situation. How are we to reconcile these two groups of statements? I think it is not difficult if we look at the thing from the right perspective. It is true that New York State has the largest number of cows of any state. Unfortunately, it is not true that each cow in New York State produces as much milk as each cow in every other state, and this is one of the important factors in our dairy situation. It is true that prices of dairy products at the present time are higher than they were a few years ago; and, it is also true that the cost of production is higher. Unfortunately, the increase in the prices of dairy products and in the cost of production have not taken place equally. So far as statistics which I can find indicate, the present prices of milk and dairy products are something like 30 to 35 per cent. higher than they were a few years ago, while the cost of farm labor and the cost of feeds, the large items in production, run anywhere from 50 to 100 per cent. higher for the same period. So the dairymen at the present time is at a disadvantage when compared with a few years ago.

It is no easy task to solve these problems for the dairymen of the state. Much work has been done by the experiment station, which

the dairymen are making use of in connection with their work. The dairy schools in this state and in other states are attempting to do what they can to solve some of these problems, but each farm is a problem, an experiment station and a dairy school of its own. Each farm and especially each dairy farm must work out its own real problems. How many men here know what it costs to produce milk on their own farms? How many know what it costs to develop a heifer from her birth to the time she begins to give milk? How many know what it costs to produce a ton of hay? These are problems that can not be solved except on your own farms.

There are two fundamental principles which, it seems to me as dairymen, we ought always to keep in mind in connection with our work. The first of these might be called the economics of dairy production or the cost of producing dairy products as compared with other animal products, because milk, butter and cheese are animal products and we know that our diet must contain, or preferably should contain, a certain amount of animal material. If you will figure the amount of milk that is produced by a good dairy cow in a year and then find out how much food that milk contains and compare it with the amount of food which is stored up in the body of a good steer in a year, you will find that it takes five or six good steers to produce the same amount of human food as is produced by one good milch cow. One cow does not eat five or six times as much food as a steer; she no doubt uses some more but not a great deal. This is one of the fundamental factors which establishes dairying as an economic method of food production, and which makes it one of the fundamental lines of agriculture for this country.

The population of this country is increasing rapidly. We are now reaching the point where our food supply is a serious problem. Statistics tell us that we have changed from a nation exporting large amounts of food products a few years ago, to the point where we are now consuming nearly all of our own production; we are now using 98 per cent. of our own corn, and are actually importing large quantities of beef. This being the case, the question of economic food production is one of great fundamental importance to this country from this time on.

Another factor in connection with dairying which it seems to

me places it as one of the fundamental industries of this country, is the question of our soil fertility. I would not have the audacity to say that it is impossible to keep up soil fertility without stable manure. We all know it is possible under certain conditions; but I think that we must all agree that other things being equal, the fertility of the dairy farm is far more likely to be maintained than the fertility of the soil used in other types of farming. As an indication of the relation of dairy farming to fertility and to profitable farming, some figures that Professor Warren obtained from his farm survey work are of interest. From about three thousand farms he selected the forty-nine which were the most profitable, that is, those which gave the largest cash returns after all expenses had been deducted. He found that out of these forty-nine successful farms of the three thousand, about one-half of them were primarily dairy farms. It seems to me that it is a significant fact that of the farms which were the most successful, so large a proportion were primarily dairy farms.

I want to point out just two or three problems that are before the dairymen, perhaps in a little different way than we are used to thinking of them. We must get all we can for our dairy products. This may be done in several ways. It may be that we can get a higher price, and since this state is rapidly changing from a butter and cheese state to a market milk state, the question of market milk is of paramount interest to the dairymen. Should the milk consumers pay more for the milk than they are paying at the present time? This is a question which we may well consider carefully. In considering that we must compare the food value of milk with the food value of other commodities which can be bought upon the market. If we find that the consumers are now paying as much for food in the form of milk as in other forms, we can not reasonably expect that the prices will increase. If, however, we find that the consumer gets more food value for a given amount expended for milk than in other common foods, we may expect that the prices will increase somewhat. Even though the food value may justify a raise in price, we have the personal factor to contend with and the question may not be, "Should the consumers pay more" but, "Will they pay more." The last few years have given us illustrations in some of our cities of attempts to raise the price of milk, which have resulted in such

strong opposition that the change was impossible, while in other places it has been possible to raise the price to consumers.

Next to the price that the consumer pays the factor which must be considered is the price which the milk dealers pay to the farmer, and in considering this it is necessary to take into account a number of conditions. We find, for example, according to recent figures that the average price paid to the farmer for milk last year was 3.68 cents per quart, for milk going to New York City. If I am not mistaken, the retail price for a large part of the milk sold in New York City is 9 cents a quart. Whether or not the difference between these two figures is larger than it ought to be is a question which we must consider on the basis of all the facts involved.

The third important factor to be considered is the cost of production. Is it possible for the farmer to produce a quart or one hundred pounds of milk more cheaply than he is doing it at the present time? If he can and the selling price remains the same, he is increasing his profits. I believe this is one of the things which lies within the power of the dairymen and one of the most probable ways in which he can increase his profits, at least for the next few years. It has been found that where a farmer pays strict attention to his cost of production he has been able to reduce that cost quite materially. For example, I have here the figures from several dairies where they have been keeping a record of the production of their cows for the last three years. In one herd the increased production per cow the third year over the first year is 1,620 pounds of milk; in another, 1,260 pounds per cow; in another, 1,600 pounds per cow; in another, 1,790 pounds per cow; in another, 1,030 pounds per cow; in another, 1,460 pounds per cow, etc. In everyone of these cases the production was brought up without increasing the cost of feed, and in some cases there was a marked decrease in the cost of feed, through the better selection of materials used.

The fourth factor which I wish to suggest is that of better team work, or better cooperation as it is usually called, among all the interests connected with dairy work. As it is now, the milk producer has his own point of view of the problems which are involved; the railroad which carries the milk to the city takes another point of view; the man in the city who handles the milk

takes another and the consumer still another. Have we not reached the time when we need to take some definite, positive action toward a better cooperation in our common problems? For many years we have had various groups of people working on the milk question. The boards of health in your cities have been doing all they could for the consumers in the way of protecting the people in the city against injurious milk. They have made a conscientious effort. I have no desire to apologize for them for the mistakes they have made, but I believe in the main their efforts have been conscientious. Other organizations have attempted to make legislation to control the milk industry in various ways. There is no harmony, no pulling together of these different groups of people who are interested in dairy work and the handling of milk and milk products. It seems to me we will never get anywhere unless we work together. I know of no better place for a movement of this sort to start than right here in the New York State Dairymen's Association. I wish we might have a commission fostered by this association, which would represent the milk producers, milk shippers, milk dealers, milk experts, boards of health and consumers, and that this whole problem from the standpoint of all parties concerned might be worked out so that we could get on some working basis which would do away in large measure with the unsatisfactory conditions which exist at the present time.

PRESIDENT DOLLAR: I was grieved this afternoon to receive the following communication from Commissioner Huson:

"MR. E. H. DOLLAR, *President, New York State Dairymen's Association, Syracuse, N. Y.*:

DEAR MR. DOLLAR: I am confined to my room with a severe cold and will be unable to be present at your opening session this evening. Kindly present my compliments to the members of your association and my sincere regrets that I am unable to be present.

Trusting you may have a pleasant and profitable meeting, I am,

Sincerely yours,

CALVIN J. HUSON,

Commissioner."

I immediately telegraphed Commissioner Huson that we were deeply grieved that he was unable to be with us and trusted he would find it possible to attend before the close of the meetings.

We are very fortunate at this time, however, to have as Mr. Huson's representative a man who I think will be able to tell us some of the things that the department is trying to do for the dairymen of the state and some of the things that he also is trying to do. It gives me great pleasure to introduce to you, Mr. Edward van Alstyne, Director of Farmer's Institutes, of the State Department of Agriculture.

SOME IMPORTANT BUT COMMONPLACE FUNDAMENTAL FACTS RELATIVE TO THE DAIRY BUSINESS

EDWARD VAN ALSTYNE, KINDERHOOK, N. Y.

MR. PRESIDENT, AND BROTHER DAIRYMEN: I can not say that it is with unmixed pleasure that I stand before you, although I do not hesitate to say that it is always a pleasure to me to speak to my fellowmen when I have anything to say, but it is not a pleasure to be compelled to come to you on short notice to take the place of the Commissioner whose inability to be with us you regret fully as much as I do.

Mr. Huson was in Chicago last week where he has been vitally interested in furthering the welfare of this state in the eyes of the states of the Union. I personally know that for many weeks back the thing that has been uppermost in his mind has been that New York should make an exhibition at the Land Show in Chicago that would put her in her true light before the people of the country. That he might be sure the work was well done and that he might have a part in it, he spent the major part of the week just passed in the city of Chicago taking a very active part in demonstrating to the world the resources of our state. You will be glad to know that most magnificent was that display. Not magnificent perhaps in space or decoration, but magnificent because of the splended quality of the products shown; magnificent because they were backed up by facts and figures most attractively presented both in the printed page and by the spoken word. You may be surprised to learn that in the eyes of a great many people, even in the Middle West, the idea prevails

that New York is a great manufacturing center, and is divided by great railroad systems, but that her agriculture is of very small importance. I remember several years ago being in the state of Ohio. I was to speak on something pertaining to the maintenance of soil fertility, and I chanced to overhear the remark, "What can that man from the hills of New York with its abandoned farms tell us?" When the opportunity came I was very glad to tell them that I lived on a farm that had been tilled 150 years before Ohio was settled, in a part of the state that had been producing and was still producing splendid crops and better crops than I had seen in most parts of Ohio.

Most splendid have been the results of the exhibition in bringing to the eyes of the people the wonderful resources of New York State. Already we are beginning to hear from it in letters that are coming in as to where best it would be to locate.

After these exertions, Mr. Huson returned Saturday evening not at all well, and yet he came to the office yesterday morning and attended to such duties as he must. After dinner, on the imperative advice of his physician, he was obliged to return to his room and his bed, and it was with regret that he could not come here. So, I am here primarily to express his regret, and yet it seemed in the opinion of those at Albany, the Commissioner among the rest, as well as the officers here, that it would be necessary that something more be said than such an apology.

I have been speaking for the Commissioner; now I come to myself and if I have anything to say I want to be the one responsible. Having conscientious scruples in regard to occupying time simply to fill the space on a program, I would think that I was paying a poor compliment to your intelligence if I were to stand before you for a little time and simply tell you stories or fill you with what might seem nice sounding phrases, without back of it at least an attempt to deliver to you a message. I believe that a man has no right to trespass on the time of an intelligent body of men anywhere, large or small, unless he has, or at least thinks he has, a message to bring to them. So I shall for a little time follow out the very excellent outline that Dean Stocking has made for us, and say something about the dairy situation in this state as I see it. I was afraid that the Dean was going to

steal some of the material I had laid away in one corner of my head,—not the result of spontaneous combustion, for I do not think much of that kind of fireworks, but as the result of some pretty careful observation and much thought. He laid the foundation, and a splendid one; I want to build on it a little.

The situation, as he has intimated, in many ways is not altogether pleasing. I know it is exceedingly pleasant to hear about the great prosperity and the number of cows and the millions of money, and that sort of thing. In the aggregate they sound big. This is not what counts. The thing which counts is the thing which affects you and me and every other man in his individual dairy. The facts are that the dairymen as a rule are not rolling in wealth. The margin of profit between the price received and the cost of production is exceedingly small. I am no pessimist. I have no patience or use for men running up and down the country decrying their own business. If such were drowned in the depths of the sea the dairymen would be better off. I am an optimist. It is a wise man who looks the situation that confronts him right in the face.

Just review the history of the dairy business for a little. That will be very fresh to some of the gray headed men in the association and yet will hardly seem possible to the younger generation who are filling these seats. Some of us can remember, not in the early years of this association but a quarter of a century ago, when the main factors in the dairy industry were butter and cheese. These were the things that were discussed in our dairy meetings; these were the things that were occupying the minds and filling the pockets of the dairymen of the state in the main. Dairymen were raising their own calves; they were raising their own swine; they were milking perhaps eight months in the year. They were making without question as much money as they are today. I am an evolutionist among other things,—in the evolution of the milk business, the increased population in the cities has increased the demand for market milk. The figures in the department show very clearly that this demand has been commensurate with the better quality brought about by inspection and care, and by better cattle. I can well remember when it was a common thing for the milk train to run down the Hudson river

through the county near my own home, stopping at every station and gathering milk from the platforms where it had been left by the farmers — milk that was not expected to keep for any length of time. Better milk has meant an increased consumption. Until today you will find by the figures of the last census, that the amount of butter and cheese that has been made in this state in the last decade has been very greatly reduced; the amount of milk increased. We do not have to go very far to see that. I can remember when in the fall of the year I could go up the Black River road from Utica and buy all the dairy cows I had money to pay for, because the farmers were raising their own cows.

A milk train now starts every morning from the St. Lawrence river and the cars are never opened until they get to their destination, New York City, 400 miles distant. Some of these men who had cows to sell are now in the market buying cows. We are becoming more and more a milk producing state. We hear the cry that the price is too low. It is true. I know what it costs me to make a pound of milk and I know what it costs me to grow a heifer. I can not make a quart of 5 per cent. milk for less than $3\frac{1}{2}$ cents. It is true that the margin of profit over cost of production is exceedingly small. At first glance the dairyman says that in order to make a profit he must have an increased price. Many of them waste a good deal of breath in damning the man who handles the product on the other end. What are the facts? The facts are that the price of milk, a perishable commodity, primarily is based on the law of supply and demand and you can not get very far away from it,—the law of supply and demand, and the surplus. The men in New York City, the great handlers, are no philanthropists; they do not pretend to be. They would be foolish if they paid more for the milk so it would come to them in greater quantities than they want to use.

What used to be the case? Less than twenty years ago farmers shipped to independent dealers; furnished their own cans; did not know what they were going to get most of the time until they got their milk check at the end of the month and sometimes it was longer, and sometimes they did not get it. What has happened in the evolution? The large handlers have come

together and here and there have established stations. They go to the farmers and for the majority of the milk sold the dairyman known what he is to receive six months before he sells it. Not only that, but the handlers agree to pay him a stipulated price on a certain day, and to take all he makes under certain restrictions.

Surplus is an important item in the milk business that few realize. The large dealers have to have a surplus ahead to tide them over a scant time, so the prices are made with the idea of, "How much milk is in sight and will this price give us all the milk we want for such a time ahead?" Let me illustrate. I happened to be at a Borden's station in New Jersey three years ago when the prices for the next six months were announced. They were five cents per hundredweight, as a rule, below the prices of the preceding year. I said, "Will you tell me where there is any warrant for a reduction in price with labor and feed so high?" The reason given was that the winter had been favorable, and the cows were coming out in good condition and they looked down the months and thought those prices would give them all the milk they wanted. What happened? The early rain was scant, later there was no rain at all; by the middle of July there was a scarcity of milk and by the first of August there was almost a milk famine. What was the result? The dealers jumped the price of milk something like thirty cents a hundred above what they had agreed to give. They wanted milk and they wanted it bad and had to have it. They established a price for the next six months better than we had ever hoped for. Consequently people said, "There is money in the milk business now, we will feed for it." There was a good corn crop and the winter was mild, so that by the first of January so much milk was being produced they did not know what to do with it. Then they began to turn it into butter and cheese and lost money.

Suppose the price of milk was arbitrarily raised one cent for the year to come. What would happen? Every one of us would produce a little more. We would buy a few more cows, and there are a lot of people who have gone out of dairying who would begin to buy cows and milk them. The price of cows would advance making the overhead charges more, and within six months

we would have such a surplus of milk that the prices would go down. The last state would be worse than the first.

I am saying these things to you dairymen because they are true and the sooner you realize it the better. What will we do about it? Any man is a fool who continues in a business that does not pay. As a dairyman I shall do one of three things: I shall either submit to conditions as they are, quit the business, or see what I can do to make my conditions right.

Let me just stop a moment and touch another phase of the question. We read in the farm papers and sometimes in the agricultural surveys, statements like this, "A community of farmers and patrons of a creamery, received so much per cow for their milk the past year. It cost to produce that milk so much." Sometimes these charges are fanciful. Let me say that you can not separate the dairy from the farm. Let that stand on an individual basis, if you do anything else, as most of us do. Dairying is a part of the farm economy. A man has no moral right if he wants to get at the truth, to charge his cows with the whole cost of the barn in which they and their fodder are housed. He has no right to charge these cows with the feed that they eat at market prices, and then go and tack on a labor bill for putting the feed before them. Some of these figures are too high. We will assume — as some of them are — that the figures are moderate and approximately correct and that it costs \$60 or \$75 or possibly a little more to keep a cow a year and that the man is not getting from her in her product any more than that. Now, if you will take these figures at their face value, what is the inference? That the bulk of the dairymen are going to the bow-wows. Do you find many who are being sold out? Do you know very many men in your community leaving the farm? As a matter of fact, the bulk of them are paying for their farms, and are educating their children. They are not paying as fast as they ought; nevertheless they are doing some of it. How can it be possible that they are doing this if these figures are correct. These people are standing the dairy by itself, and they are failing to appreciate the fact that on many a farm the one great item is pasture and that the only way, or the best way, to utilize that pasture is through the dairy cow. This is an income that can be realized

in no other way. On most farms what could you do with thirty or forty acres of ensilage corn if you did not have the dairy cow to feed it to? She will market it at five or six dollars a ton, and the man has made a profit on his corn crop. He is not going to the wall because his dairy is a part of his farm economy which helps to turn his farm material into money.

Another thing I am sorry to note, there is a disposition on the part of dairymen to go back to the dual purpose cow. God forbid that in the state of New York such a state of things should ever exist. I thought we had left that behind with the dash churn. It is alarming. An instance recently came to my attention where a man, a dairyman, put a Shorthorn bull at the head of his herd. I hope this association will set itself against any such thing as that. Let us stick to the special purpose cow. I was glad the Dean said what he did about the dairy product as compared with beef. It is a fact that it takes just about the same amount of food to produce a pound of butterfat as it does a pound of beef; the former is worth 25 to 30 cents per pound, the latter 6 or 8 cents. A man says, "I am going to have a steer," but a good well-bred heifer two years old is worth a lot more than the steer and costs less to develop. There may be a few instances in this state where a man can afford to grow beef, but we are a dairy state and will be to the end of the chapter. Let us stick to the special purpose cow.

I want to give you some figures to substantiate what the Dean has said relative to cost of feed and price of product. These figures are taken from the records of a cow testing association in the town of Delhi.

KIND OF FEED	1898	1913
Hominy feed	\$16.00	\$31.00
Corn meal	18.00	34.00
Gluten meal	16.00	32.00
Cottonseed meal	23.00	36.00
Corn and oats	21.00	35.00
Wheat feed (bran)	16.00	30.00
Middlings (wheat)	20.00	35.00
Ground oats	23.00	35.00
Boston wheat feed	17.00	29.00
Linseed meal	28.00	37.00

Increase in fifteen years, 69 per cent

BORDEN'S FLAT PRICE FOR MILK.	1898	1913
January	\$1.35	\$1.75
February	1.30	1.65
March	1.20	1.60
April	1.00	1.40
May .....	.80	1.15
June	1.70	1.00
July .....	.80	1.25
August	1.00	1.35
September	1.20	1.50
October	1.30	1.90
November	1.30	2.00
December	1.35	2.00
Average price for year.....	\$1.1125	\$1.5458

Increase in fifteen years, 39 per cent.

Thirty-nine per cent. increase in prices, 69 per cent. increase in cost of feed. You can safely say it is costing the farmer at least 85 per cent. more to produce milk than it did fifteen years ago, while the increase in selling price is about 40 per cent. These are facts that emphasize the smallness of the margin of profit. What are we going to do about it? Begin, every man on his own farm, to sift out his own cows. That is the old, old story, but it will be ever new, and we will never solve this dairy problem until we go at it from that end. I have tried to picture to you the other end and show you conditions as they exist. We can not do so much there. We can only get a higher price in that we make a better, higher quality milk. Now, what do we find? We find men are doing that. Five hundred and thirty-five cows in the Delhi Association, as shown by creamery records, produced 270,179 pounds more milk than 536 cows in the same association and in the same herds produced the year before records were kept. That is, a less number of cows produced over 270,000 pounds more milk.

I have some figures here from the Ithaca Association with which Dean Stocking is familiar:

	Herd No. 1	Herd No. 2	Herd No. 3	Herd No. 4
First year	\$18.04	\$38.04	\$22.86	\$13.36
Second year	44.63	41.71	33.60	19.62
Third year	36.02	48.32	57.40	50.59
Fourth year	40.81	54.84	46.59	51.73

The third and the fourth years there was not as great a difference, but the facts show plainly that the advance came by culling out the poor cows. This is the solution of the problem of better prices. The solution is with you and with me, every man on his own farm, culling out and disposing of the poor cows; keeping less, if you please, but those kept producing at a profit. Then and only then can we have the reward for our labor to which we are entitled.

One thing more. So much depends for our state and our nation on the character of the men and women we shall have not only on these farms and in these rural communities, but the character of the men and women we will send out to replenish and revitalize the cities. If I can impress this upon you I will have delivered my message. I see many young men here. I should like to have them realize that better-cared-for stables, better-bred cows, with milk of a high character, not only will increase the quality of their products, but that such will engender a respect for their business and necessarily a respect for themselves, which is worth while, and which no man can have who is surrounded by poor cattle, in miserable quarters, putting out a product in which he can have no pride.

If we will see in these quarts of milk or pounds of butter, better cows, better bred and better cared for, a means whereby we can have that which shall make our homes better, we shall bring into our lives more fullness; we shall give our children those things that are worth while, that will make them good citizens. That is the message I want to give you tonight. The Son of Man said that He came that we might have life and have it more abundantly. This, after all, is the end we should all have in view; that the material things of the farm may bring us the wherewithal whereby we can bring into our lives those things which shall give us this abundant life physically, mentally and materially.

PRESIDENT DOLLAR: It always becomes the duty of the president of the association to make his annual report. Sometimes this report takes the shape of recommendations as is the case this year. In this particular case I want you to believe that the recommendations that I am to give you are presented for the good of the cause and not because some personal grievance might have tempted me.

ANNUAL ADDRESS OF THE PRESIDENT

E. H. DOLLAR, HEUVELTON, N. Y.

This association, if it fulfills its place in the making of history, should stand squarely back of every legitimate undertaking to advance the interests of the dairyman, because although the Dairymen's Association is affiliated with the Butter and Cheese Makers' Association and the Ice Cream Makers' Association, the foundation for the success of these organizations must come through successful dairying.

The dairy industry is by far the largest agricultural industry we have in this state, and, although we can say it is practically undeveloped, much has been accomplished in the past ten years toward better education of the dairy farmer. We have several concrete factors that have, or should have, much to do with agriculture and agricultural education in this state, and the important ones, as I think of them are: The Department of Agriculture, at Albany; the New York State College of Agriculture, at Cornell; the New York State Experiment Station, at Geneva; the secondary schools in various parts of the state; and the State Fair, at Syracuse. These different factors in agriculture and agricultural education should accomplish much, if their work could be carried on conjunctively, eliminating all strife on the part of one institution or department toward another. This, I am sorry to say, has not always been eliminated in the past, and many times friction and strife have not only wasted money but have greatly interfered with the work of the different institutions. The State of New York is a large state and the need of agricultural education is so great, that we can not afford to lose any time quarreling among ourselves. Besides, the work is much less effective if anything but the best of friendship exists between such institutions or departments. The farmers should not for one moment stand for any selfish methods from the men who are designated by the state to advance the interests of agriculture. Only last winter the farmers were threatened with the loss of the one great educational factor available to many of them, the Farmers' Institute, and this, I believe, was not because the legislature of the state, or the Governor of the state, did not want the farmers to have the small amount of money appropriated for Farmers' Institute work, but

because our great educational factors were not working together, or at least, were not working in harmony.

The agricultural education of New York State can not be successfully handled from any one institution. The state is too large, the need of agricultural education too great, and the less time we waste doing things that are unnecessary and that ought not to be done, the better it will be for the agricultural interests of all concerned. I do not mean by this that we should not have one head to all agricultural interests. We should have one head, but that head should be entirely removed from the demands of political organization, which must of necessity embarrass him in the execution of his duties to the best advantage.

You know how political organizations demand the appointment of this man here, and that man there, regardless of his ability to fill the office efficiently, and how about every so often the whole agricultural system of the state is turned upside down by a change in administration, and the good work of the commissioner for the several years that he has been in office is scattered to the four winds, and a new man is appointed to his place. Then we begin back where we were before, and the same thing is repeated.

It seems to me that the sooner we pattern after our Department of Education, which is eliminated entirely from politics and political influence, the sooner our agricultural organizations will begin to accomplish what they should, and this too without friction.

Look at the vast amount of money appropriated each year for the Department of Education. Look over the splendid building that has been erected for their use at Albany, and when we remember that this Department has accomplished this, and still remains free from politics, it makes me feel that we might do the same thing for agriculture and agricultural education, equally as much needed.

I can think of few things that have done more for the dairy farmer in the way of teaching him better methods, than the Farmers' Institute. This work has been carried to the most remote sections of the state and its influence has surely been beneficial. This association should use its best efforts to have this educational advantage continued to the farmers and dairymen of the state.

We should stimulate the organization of cow testing associations in every county in the state, because of their helpfulness to the dairy farmers and dairying in general. If some arrangement could be made so that better men could be secured to do the work of these associations, it would be a great advantage. I have known of two associations in my own county that have been discontinued because of the inefficient work of the supervisor. The present method of charging each dairyman one dollar for each cow a year, makes it necessary in most cases to hire the supervisor for from four hundred to five hundred dollars a year, and his salary will not often secure a satisfactory man, where if a larger salary could be paid, a much more able man could be employed.

We should have a more active Legislative Committee to look after all proposed legislation affecting the farmer, and agriculture in general. We came very near having a bill passed at the last general session of the Legislature, placing a tax of twenty-five cents a ton on all commercial feeding stuffs. This bill, had it become a law, would have cost my own county of St. Lawrence between two hundred and three hundred thousand dollars a year, and the farmer would have to pay the tax. Some will say, "How do you know the consumer will pay this twenty-five cents a ton increase in price, if this bill had become a law?" We know it by looking over the price lists of the large milling houses of the West. No doubt you are aware that some states have this tax on feeds already. The milling houses know this also and in order to make their price lists issued weekly, effective in all states, they have added to the price list a clause stating: "If your state has feed tax, add twenty-five cents a ton." In other words, if the state makes us pay twenty-five cents a ton to sell commercial feeds to you, you must pay that twenty-five cents a ton advance in price. This bill, had it become a law, would effect most particularly the dairy farmers of the state. These men are the heavy buyers of commercial feeding stuffs, and it is well known that their net profit from the operation of their farms is too small already.

This association should have an active committee that would concern itself with the economical questions of transportation and distribution of our dairy products. It is a well-known fact that

the producer is too much at the mercy of the transportation companies, as things are at present. This means that no matter how efficient your system or how low you have figured the cost of production, the cost to the consumer remains about the same. Do not understand me as being opposed to paying big corporations and transportation companies a reasonable compensation for their work.

We must have corporations and transportation companies and we must allow them to transact their business on a paying basis, or we can not expect good service; but we should have some way to keep these things in hand so that they can not make the shipper pay more than is commensurate with the service performed. We should do this for our own protection, because the state and city demand that we offer to the consumer a superior article, clean and wholesome, and we should see to it that our products are promptly delivered to the consumer and in good condition. Our cooperative methods have done much for the producers' end of the business. Let us try some practical plan on the marketing end.

We should ask the state to appropriate sufficient money to allow the department of agriculture to take charge of the inspection of our herds and dairy buildings. This is a change much needed. While the present method of city inspection has accomplished much, the fact that every city in the state may have different rules and regulations, is very unsatisfactory to the farmers. If this was handled entirely through the department of agriculture, the inspection would be the same throughout the state. The department has many efficient men in the field who could be used in this work during the winter months when other lines of work are less pressing and when inspection is most needed, because this is the time when cattle are confined in the stables and therefore stables and methods are in need of inspection. This, of course, would take much time to work out. The inspection of the one and one-half million cows in the state, together with their stables and the methods used in the care of these dairies, must mean a tremendous amount of work, but it seems to me this inspection must come sooner or later, and the earlier we get started at it, the quicker we will have a more satisfactory inspection.

We as members of this association have some important questions for consideration which are at least partly in summary as follows:

We should strive to advance the interests of our dairymen, because on the success of this industry hinges the success of our affiliated organizations, as well as our own.

We should demand cooperation and unity throughout our whole agricultural system and, it seems to me, this can be brought about only by its absolute removal from political affiliations.

We should watch proposed legislation closely and be ever ready to oppose undesirable bills if introduced in the assembly or senate. The farmer does not lack friends in either house, but he does lack the faculty of placing his needs before the representatives in the strongest and most impressive manner. We should have a special committee to take care of this.

We should have a committee to work out cooperative methods of transportation and marketing, the necessity of which must have been apparent to you on many occasions in the past.

With these few words and recommendations, I will close. I thank you most heartily for your kind support for the two years that I have had the honor to act as president of your association, and ask you to give my successor the same loyal support and cooperation, without which little can be accomplished.

SECOND SESSION

WEDNESDAY, DECEMBER 10, 10:30 A. M.

PRESIDENT DOLLAR: Our program says that our session this morning is to be a session in the interest of the cheese industry of the country. We heard last night that our state was fast becoming a milk shipping state, but we know that the cheese industry is a big industry in this state. I feel that a session that is given over to the cheese industry should be presided over by a man who has that industry first in his mind and is interested in it. I am glad we have here such a man who has very kindly consented to take charge of this session, and it pleases me greatly to introduce to you S. Brown Richardson, of Lowville, and to turn the meeting over to him.

MR. RICHARDSON: President Dollar is very fond of his friends and he has a most interesting and diverting method of calling them to his service whenever he wishes to do so. A few moments ago he approached me and interrupted me in a most interesting occupation, which by the way was also being performed for his benefit in the upper room where I was scoring the exhibit of cheese, and told me he would like to have me preside over his meeting. I am very thankful, sir, and very grateful for the honor thus conferred and I am very glad to see here men who I know represent the dairy industry in this state — a great industry. In the line of cheese, perhaps not as great as it has been, as you all know the inroads which the milk industry has made on our cheese industry. Nevertheless, our cheese industry is perhaps greater than that of any other commonwealth in our great combination of states, and I feel that we are especially fortunate in having with us today a gentleman who, although not altogether one of us, is with us in spirit even when he is away from here in person; a gentleman whose interests do not conflict particularly with any of the states in which the cheese industry is prevalent, but who is interested in this industry under another form of government that must and always will turn the eyes of the cheese makers in this country Canada-wards and perhaps, if

the Commissioner will excuse me, there will be just a little bit of green in our eyes when we look over the border and talk tariff. I am quite sure that you will agree with me that we are very fortunate this morning in having with us this gentleman, and it gives me pleasure to introduce to you as your next speaker and as your principal speaker on this topic, Commissioner J. A. Ruddick, Dairy and Cold Storage Commissioner, of Canada.

CANADIAN DAIRY TRADE IN RELATION TO U. S. MARKET

J. A. RUDDICK, CANADA

MR. CHAIRMAN, MR. PRESIDENT, LADIES AND GENTLEMEN: I am beginning to feel quite at home with the New York State Dairy-men's Association, because I believe this is the fourth time I have had the honor of addressing you at your annual convention. I have two reasons for feeling that way about it. In the first place, I can always learn something myself. Then, I am glad if I can in my feeble manner return some of the many favors we have received in Canada from your people here in the State of New York. We got our cheese factory system from this state in 1864. A man from Herkimer County went over to Oxford County, Ontario, and established the first cheese factory in Canada. After that, when the Dairymen's Association was organized, we used to get speakers from this state. I remember as a young man attending the conventions, because I began that sort of thing when I was pretty young, and listening to Professor Arnold and that dear, thoughtful old gentleman, the Honorable Harry Lewis, whom some of you know, and I can not think of how many others, we had from time to time. If I can in any way, then, return some of these favors by coming over here and talking to you for a few minutes, I am very glad to have the opportunity.

What I have to say this morning touches on the trade in dairy products between Canada and the United States, and of course you will understand that I am not here for the purpose of advocating or promoting any trade of this kind, but simply to give you some of the facts connected with the dairy situation in Canada today, and probably some of my impressions as to what may happen in the future in this connection. Since I shall have to quote a few

figures, I have put what I have to say on paper for the sake of being concise and covering as much ground as possible in as little time as possible.

Trading in dairy products between Canada and the United States has been going on for over a hundred years. In 1801 a quantity of butter and cheese was exported from the neighborhood of Kingston, Ontario, to Oswego and other places in New York State. During the term of the Elgin-Marcy Reciprocity Treaty (1854 to 1866) when butter and cheese were on the free list, considerable business was done in both directions. For the year ending June 30, 1859, Canada exported to the United States over a quarter of a million dollars worth of butter and cheese, which was at that period quite a good percentage of the total production. During the Civil War, when so large a number of the producers were withdrawn from industrial life, an abnormal demand arose which enabled Canadians to increase their sales of dairy produce to this country to nearly a million dollars in 1865. These figures are, of course, insignificant in comparison with the enormous volume of dairy production in the United States and Canada at the present time.

The United States Tariff Act of August 5, 1909, generally known as the Payne-Aldrich Tariff, in which the duty on cream was reduced from two cents per pound to five cents per gallon, resulted in a considerable quantity of cream being shipped from Canada to the United States, the maximum being reached in 1910 when over one million gallons were exported. It so happened, however, that just about this time the Canadian home consumption of butter began to overtake production. The rise in the price of butter which followed checked, to some extent, the shipment of cream during the next two years, and the slump in the dairy markets on this side of the line in the early part of 1911, had something to do with the falling off in the volume of business.

The still more recent tariff revision of October 3 last, in which milk and cream were put on the free list, and the duty on butter was reduced from six cents per pound to two and one-half cents, and the duty on cheese from six cents to 20 per cent. ad valorem, has already resulted in a considerable resumption of cream shipments, and for the first time fresh milk is being carried over the

border in quite large quantities. In view of these new conditions which have been imposed by the tariff reductions, and which were obviously designed to encourage an increased importation of dairy products from Canada, New York State dairymen must have a new interest in the progress of the Canadian dairy industry. Some curiosity on your part with respect to the probabilities for an increased movement of dairy produce across the border would be quite natural at this juncture. I propose, therefore, to give you a brief statement as to the present position of dairying in Canada, with some notes on the volume and tendencies of the export trade.

According to the census of 1911, there were 2,594,179 cows in Canada that year. This was an increase of 185,502 as compared with the census of 1901. The increase was all in the western provinces. In all of the five provinces east of the great lakes there was a small decrease in the number of cows during the decade. Mere numbers, however, is only one of the factors which affect the production of milk, for we find that while the value of the total product in 1900 was \$66,470,953, it had risen to \$109,340,024 in 1910. In other words, the increase in the number of cows during the decade was only 7 per cent., while the increase in the value of the total product was 60 per cent. In Ontario where there was a decrease of 3 per cent. in the number of cows, the value of the product increased nearly 35 per cent. In 1900 the value of the total product was \$27 per cow and in 1910 it was \$42 per cow. Part of this increase in value must be attributed to a 10 per cent. higher price in the latter year and to the fact that a larger proportion of the total product was sold as market milk; but even after these allowances are made, the figures show a very substantial gain in the average production of milk per cow.

The increase in the yield per cow, resulting from better management of the herds, is mostly clear profit, and it is only fair to add that much of the credit, for this result is due to the cow testing propaganda which has been carried on for the last eight or ten years by the dairy division of the Dominion Department of Agriculture. The farmers are encouraged to test and weigh the milk of the individual cows in their herds in order that the unprofitable ones may be eliminated and the herd built up by rearing the progeny of those that have the best records. This work has only just begun and it

is a fair presumption that by the time the next census is taken a still greater increase will be shown.

Figures for the total value of dairy production in 1913 are not yet available, but if we take the figures already quoted from the census of 1911, which give the value of total products in 1910, and allow the same rate of increase as there was between 1900 and 1910, the value for 1913 is approximately \$122,000,000.

The value of the different products in 1910 was as follows:

FIFTH CENSUS

Factory cheese	\$21,587,124
Homemade cheese	153,036
Creamery butter	15,645,845
Homemade butter	39,889,953
Condensed milk	1,813,971
Milk and cream consumed and used for ice cream..	30,250,005
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	\$109,339,934
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The present tendency is to increase the output of creamery butter and condensed milk, at the expense of the cheesemaking industry, and at the same time a larger percentage of the total milk produced is required for city consumption. The ice cream business in Canada, as in the United States, has become a very important branch of the dairy industry and it is growing very rapidly.

The Eastern Provinces are not likely to add very materially to their cow population, unless the stimulus of a period of very high prices might have that result; but there will be great improvement in the cows that are kept. Cow testing is the order of the day. The farmers are waking up to the possibilities which lie in that direction.

The expansion of the industry as far as increase in the number of cows is concerned will be very largely in the Prairie Provinces of Manitoba, Saskatchewan and Alberta. In the year 1910 the total value of dairy production in Alberta and Saskatchewan was over \$15,000,000 as compared with \$1,200,000 in 1900. The increase was all in the last few years of the decade. When I

remind you that the area of these two provinces alone is greater than that of all New England, New York, Pennsylvania and all the Atlantic States, including Florida, combined, you will have some idea of the potentialities of that great country.

CHEESE FACTORIES AND CREAMERIES IN CANADA

The factory system which was introduced into Ontario by Mr. Harvey Farrington of Herkimer County, N. Y., in 1864, is well established in every part of the country where dairying is carried on. The latest returns show that there are 1,984 cheese factories, 994 creameries and 782 combined factories; or a total of 3,760 factories in the whole of Canada. Of this number 3,374 are in Ontario and Quebec, while the others are about evenly distributed among the other provinces.

THE EXPORT TRADE

Sixty years ago the export of butter from Canada had already reached a figure of some importance, but it was not until the early eighties that the export cheese trade began to attract attention. The high tide of the Canadian dairy export trade was reached in 1903, in which year the total value of all products exported was \$31,667,561. Since 1906 the value of the exports have steadily declined until in the year which ended March 31, 1913, the total value was only \$21,714,153. This decline in the export trade is not the result of decreased production. There has been as much increase in milk production in Canada during the past decade as there was during any similar period in the history of the country. The Canadian home consumption is between thirty and forty million dollars a year larger than it was when the exports were at the maximum ten years ago. This is due partly to an increase in the per capita consumption following the great prosperity of the country, and partly to the increase which comes from a rapid growth in population.

Canada's foreign trade in dairy products has, in the past, been extended in small quantities to some forty different countries, but for practical purposes, until quite recently, only one customer, namely the United Kingdom, was worth considering. With a reduction of the duty on cream in 1909, sales to the United States at once began to increase. During the fiscal year which

ended March 31, 1909, the total value of all dairy products exported to the United States from Canada was only \$45,930. Two years later, the figure has risen to \$1,896,349, the details of which (values only) were as follows:

Cheese	\$36,634
Butter	91,313
Cream	1,714,528
Condensed milk	11,474
Casein	37,009
Fresh milk	5,391
	<hr/>
	\$1,896,349
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Following 1911 there was some decrease, but at the present time there is every indication that the volume of business will soon be larger than ever before.

BUTTER IMPORTED INTO CANADA

In connection with Canada's foreign trade in dairy produce, we are confronted with a rather curious anomaly, inasmuch as while the exports of milk and cream have been increasing, the importation of butter has increased even more rapidly. For the year ending March 31, 1910, the imports of butter into Canada amounted to 687,454 pounds; in 1911, the quantity was 1,328,792 pounds; in 1912, there was a further increase to 3,897,332 pounds, and for the year ending March 31, 1913, the total importation of butter was 8,145,527 pounds. Of this quantity 6,016,902 pounds came from New Zealand direct to Vancouver for the Pacific Coast trade, 1,113,096 pounds were from the United States, and nearly 1,000,000 pounds from the United Kingdom, most of which was of New Zealand or Australian origin.

Canada could easily supply all her own needs in the matter of butter by diverting that much milk from the cheesemaking industry, but the manufacture of cheese is so firmly established in some districts that the farmers are disinclined to give it up. Moreover, the importation of butter at the Pacific Coast is a matter of geography rather than a commercial consideration. The country west of the Great Lakes requires about 20,000,000 pounds

of creamery butter a year in excess of what is produced in that territory. The ocean freight from New Zealand to Vancouver is about the same as the railway freight from Montreal or other eastern points. New Zealand butter is in full supply when it is winter in the Northern Hemisphere, and the arrivals of this fresh grass butter compete with stored butter during the winter months. The Canadian duty on New Zealand butter which is three cents a pound under the Preferential Tariff, amounts to a little more than the cost of carrying summer made butter for use in the winter months. New Zealand having a large surplus for export, the prices in that country are regulated by the world's markets, while the price in Canada for the last year or two has been from three to four cents above international values. This importation into Canada has a bearing on our subject, because it affects the quantity of other products which are available for export.

I see no reason why large quantities of New Zealand and Australian butter should not be imported into the United States under the present tariff. I am advised by a New Zealand correspondent that he has already made some shipments to San Francisco, and that he expects to work up a large business.

When the Panama canal is open for traffic, the New Zealand mutton and butter steamers, as they are called, which now proceed to England via Cape Horn, will in all probability take advantage of the short cut, and it would be a simple matter to discharge a portion of a cargo at some Atlantic port. Indeed, I shall be surprised if you do not see, before many years, whole cargoes of butter and frozen meats from Australia being brought to this country. Both Australia and New Zealand are destined to be great sources of the world's supply of meat and dairy products. The climate of New Zealand is more favorable for dairying or stock raising than for any other line of farm work. A fertile soil, an abundant rainfall with no frost or snow, permitting cows to graze the year around, enables the New Zealand farmer to compete with all comers in the production of milk. With a small population, which is increasing slowly, there will always be a large surplus for export. I am not here to promote trade for New Zealand; I am merely pointing out the probabilities as I see them.

I do not expect to see very large quantities of butter or cheese exported from Canada to the United States. In the present condition of the Canadian market, it would take a very small movement of butter or cheese across the line to boost the price in Canada to a prohibitive figure. Even if these articles were put on the free list, the same result would follow.

It seems to me that the business will be confined largely to milk and cream shipments. By the removal of the duty, cities like Detroit and Buffalo on the border, had at once thrown open to them a rich, productive and contiguous territory from which to draw supplies of milk and cream. The Boston milk dealers have gone up to the Eastern Townships, that portion of the Province of Quebec which lies between the city of Montreal and Vermont border, and are securing large quantities of milk and cream at convenient shipping points. Factories along the line of the New York and Ottawa Railway are now shipping milk to a condensor at Messina. A creamery at Messina is also getting some cream from this line. Large quantities of milk and cream cross the border daily at Odensburg and Morristown. Some of it goes to New York City. How long this trade may continue, or whether it will grow much larger, remains to be seen. My opinion is that it will not extend much beyond its present proportions for some time at least. Prices are bound to advance in Canada until they are as high or nearly as high as they are on this side of the line. Finest creamery butter is worth twenty-nine cents on the Montreal market today and cheese is selling at thirteen and three-fourth cents. As for milk and cream, I may say that the output of the model factory operated by the dairy division of the branch of the Department of Agriculture which is under my charge, situated equally convenient for shipping to Montreal or to the United States, is being disposed of in Montreal at prices considerably higher than any offered from this side.

DISCUSSION

MR. RICHARDSON: I wish to say that this hour is given up to the discussion of this subject and it is not expected that the leader in the discussion will do all the talking. Commissioner Ruddick will be willing to answer any questions you may ask in relation

to this or other topics which he has not touched on in the cheese industry, and will explain or elucidate further any statement that he has made.

M. B. DEAN: May I ask the Commissioner if I understand him that he considers that the trade relations between Canada and the United States under free trade will adjust so that there will be practically no export from Canada to the United States?

COMMISSIONER RUDDICK: That is what I think will occur. There will always be a little trade here and there as there has been for fifty years. For instance we are buying milk on this side in quite large quantities for the cities of Winnipeg and Vancouver. There is a good dairying district in Canada near the city of Detroit. This city has been drawing milk from its own side of the river. When they can get milk just as easily from the Canadian side of the line, they are going to get it, but I do not expect to see any general export of dairy produce from Canada to the United States, for the reason I have given. The conditions are such that a little export to this country would affect prices very quickly. The market is much stiffer today on account of the reduction of duty on October 3, which permitted a lot of cheese factories to ship over their supply of milk and cut off the supply of cheese. I believe conditions are such today that we will see the highest prices for cheese we have ever known next summer.

MR. RICHARDSON: I take it from what you have said that you think the present prices for milk and cream in Canada have been affected along the lines that you have suggested, by the considerable quantities of milk and cream that have been shipped to the states since the new tariff went into effect.

COMMISSIONER RUDDICK: There is no doubt about that. I never knew a condition to prevail in eastern Ontario, such as we have this winter. The demand for city milk is growing very rapidly and it is taking a very great quantity of milk to supply that demand. They are paying better prices this year than ever before. Prices are going to be higher in Canada, so while I should not say that the trade will be cut off entirely, it will not be as much as many people thought it was going to be.

M. B. DEAN: While not connected with the dairy industry, it would be a matter of interest if you would tell us whether you

think the same conditions will prevail in relation to exports of potatoes and eggs.

COMMISSIONER RUDDICK: There will be no export of eggs. We are importing eggs today from the United States. Eggs are cheaper in the United States than they are in Canada.

PROFESSOR FISK: Do you have any regulation regarding washed curd cheese?

COMMISSIONER RUDDICK: No, we have never had any occasion to make any regulation.

PROFESSOR FISK: Does Canada make any skimmed milk or soaked curd cheese?

COMMISSIONER RUDDICK: No, we do not.

PROFESSOR FISK: How do you prevent it?

COMMISSIONER RUDDICK: We do not have to prevent it, since people do not want to make it. That sort of cheese would not be of any use in the export trade, and our cheese is manufactured for the export trade. You could not fool an Englishman with soaked curd cheese.

PROFESSOR FISK: If there is such a demand for cream, do you think Canada will ever come to manufacture skimmed milk cheese?

COMMISSIONER RUDDICK: I think not. It is possible there may be some manufactured. It is not against the law, but every cheese made from milk from which any portion of the cream has been skimmed must be branded "skim cheese" both on the cheese and package.

MR. RICHARDSON: Have you any laws in Canada regulating the storage of cheese or butter as to the time it shall remain in storage, or whether or not it shall be restored after once taken from storage?

COMMISSIONER RUDDICK: No, so far we have had no legislation on that subject, none relating to the storage of any kind of goods.

MR. LANG: May I ask the Commissioner whether the bulk of the milk and cream of the Canadian trade is pasteurized prior to shipment.

COMMISSIONER RUDDICK: I do not think the bulk of it is; some of it is. Recently there has been more pasteurized cream shipped than ever before, and they are offering a higher price for this product. Much of the cream comes from factories where they have not the equipment for pasteurizing it and they are not spending

the money to equip their factories. This also refers to milk coming over here. I do not think there is any pasteurized milk being shipped; the milk is simply cooled. Of course, these shipments began after October 3, when the weather was quite cool.

MR. McALLISTER: Is there any difference in the quality of cheese made in Canada and that made in the United States?

COMMISSIONER RUDDICK: I do not believe that it is a question of quality. It is a question of difference. There is a decided difference, I think, in what might be called a typical Canadian cheddar cheese and a typical New York State cheddar cheese. The Canadians have been catering entirely to the United Kingdom and there they require a firm cheese with the typical cheddar flavor. Our cheese is made in that way rather more firmly than the cheese on this side of the line.

MR. RICHARDSON: In your opinion, Commissioner, what is the average age at which the English people want to put a cheese under the knife?

COMMISSIONER RUDDICK: Of late years they have been taking cheese very much greener than they formerly did. The cheese trade is entirely changed. Ten or fifteen years ago when Canada was practically the only supply for that kind of cheese, the cheese we made in six months did for them the whole year and it was stored and held from June into the winter months. A great deal of the cheese was a year old when consumed. Then, as our exports began to fall off, the New Zealand shipments began to increase and their season being exactly the opposite of ours, their cheese comes in during the winter months. They are now supplying the winter demand and our cheese is used for the summer months. I think probably the taste has changed a little in favor of the greener cheese. Take the Cheshire cheese which is a very large item in the English supply. They used to keep that cheese until it was eighteen months old; now they are making it a little different and it is being used immediately.

PROFESSOR FISK: I believe that Commissioner Ruddick has touched on one thing that is quite important to the dairymen in New York State, and that is the question of washed curd cheese. He said you could not fool an Englishman with it. We must be fooling a good many people with washed curd cheese, we are mak-

ing much of it in New York State. Last year this association went on record as being against the manufacture of skimmed cheese. I should like to ask some of the people here how the laws against skimmed cheese are working out?

MR. RICHARDSON: Perhaps Mr. Lang can tell us.

MR. LANG: I can tell you only from my experience since this law went into effect. The bill was framed by a committee appointed by the New York State Dairymen's Association at their convention at Syracuse last year, and the principal object was to guard against misrepresentation by misbranding. Before that all cheese had been marked "skimmed" but they had been marked in very small letters. The bill that was passed classified skims into three different divisions. In the first place they must all be marked "skimmed milk cheese" on the cheese as well as on the package, in letters one-half inch square. The word "special" may be used provided the cheese contains 18 per cent. or more of butter fat. By July most of our customers who wanted a good skimmed milk cheese insisted that the word "special" be branded on the cheese at the factory. That did away with the practice of deception that had been going on for years. Now, a buyer who wants good skimmed cheese insists that it shall be branded "special." Anything below 18 per cent. has to fight for itself and stand on its own merits.

COMMISSIONER RUDDICK: I made the remark that you can not fool an Englishman with soaked curd cheese. What I meant is that that is not the kind of cheese the trade demands. My own view is this, that no cheese will ever have a permanent place in the dietary of any people unless it has a characteristic and typical flavor. Flavor is the great thing in cheese. We eat cheese very largely on account of the flavor. You can not get the typical cheddar flavor in soaked-curd cheese. It is the flavor that creates a permanent demand for it. If you can create a demand for the other type of cheese, all right. If you can induce the people to believe they are getting value by buying an unnecessary amount of water, you are that much ahead. I speak from the standpoint of the Canadian trade where we are catering in our service for the market in Great Britain.

MR. RICHARDSON: I am very glad that you explained the remark that you made a short time ago. The fact is we have some opposition to the making of what we call washed curd cheese in this state. If we do not like them, we call them "soaked curd;" if we do we call them "washed curd," and if they are washed curd I think we ought to all like them a little. I believe they have a place in our cheese making. I am of the opinion that certain sections of our country want a washed curd cheese. I believe that for people who want to consume cheese within a few weeks or months after it has been made, if it has been properly cared for, there is economy in this state in making a certain percentage of washed curd cheese, and if you make them and have them to sell, the people in the New England States and the people in some of the Middle States, including the one where we are now, and one or two others farther west, prefer them and will pay a better price for them than they will for the other cheese. I do not like a soaked curd cheese. I like to have a cheese washed a little for certain domestic trade.

COMMISSIONER RUDDICK: There is one point that should not be overlooked in the discussion of the two types of cheese, and that is the matter of flavor. The true cheddar flavor can not be developed in the course of a month or so; it takes several months. I think one trouble has always been, here as in Canada, that the cheddar cheese is put on the market in altogether too green a condition. It is not cheddar cheese at that time. It does not get a fair chance. What we are doing is to provide cooling rooms in connection with our factories, so that the temperature never goes above 60 degrees in the hottest weather. My department is running a model factory and we are catering to the home trade. We made nearly one thousand small cheeses weighing ten pounds each in the month of June. They are in the factory yet, and have never been above 60 degrees. They would not have been acceptable at all when two months old. It costs money to hold cheese like that, but there are people in England who will pay the price. It all depends on the market you are catering to.

W. J. PEACH: I am very glad that you have brought out the subject of the proper curing of cheese. I know that cheese made

in the way you say and put into storage and ripened is probably the kind of cheese, but the farmers do not want to make cheese like that, it takes more milk. The factories are driven into making the other kind. When one man is making a washed curd cheese and making it out of $9\frac{1}{2}$ pounds of milk, and another is making a good firm cheese and using $10\frac{1}{2}$ pounds of milk, this man can not hold his patronage. I was driven into making washed curd cheese a number of years ago. I went up into St. Lawrence County and taught a man how to make the first washed curd cheese ever made in St. Lawrence County. I do not know today of a factory in that county making any other kind of cheese.

MR. RICHARDSON: This discussion is very interesting, but we are nearing the noon hour and if there are no further questions we will adjourn this meeting. I feel that it has been a very instructive and interesting meeting and that I am safe in your name, as well as of my own volition, in thanking the Commissioner for the excellent and intelligent manner in which he has elucidated this subject from the Canadian standpoint. If there are no further questions we will stand adjourned.

I wish to say that at 2 P. M. this afternoon we will have an address by Professor C. E. Lee on "Workmanship as a Factor in Making Good Butter." I think you will find this a very instructive lecture.

THIRD SESSION

WEDNESDAY, DECEMBER 10, 2 P. M.

PRESIDENT DOLLAR: The first thing on the program this afternoon is the appointment of committees, and I wish that those who are named on these committees will make a note of it so that they will not forget it, because these committees should report tomorrow at the morning session:

AUDITING COMMITTEE

George A. Smith, Geneva.
A. B. Hargrave, Heuvelton.
James Mills, Utica.

COMMITTEE ON RESOLUTIONS

S. Brown Richardson, Lowville.
W. N. Giles, Skaneateles.
Loton Horton, New York.
Charles H. Tuck, Ithaca.
W. E. Dana, Avon.

COMMITTEE ON LEGISLATION

Henry L. Grant, Copenhagen.
F. N. Godfrey, Olean.
Harry B. Winters, Albany.
C. Fred Boshart, Lowville.
W. A. Stocking, Jr., Ithaca.

COMMITTEE ON COW TESTING ASSOCIATIONS

Edward van Alstyne, Kinderhook.
A. J. Nicoll, Delhi.
H. H. Wing, Ithaca.

COMMITTEE ON EXTENSION WORK

Charles H. Tuck, Ithaca.
H. E. Cook, Canton.
F. W. Howe, Syracuse.
F. G. Helyar, Morrisville.
W. J. Wright, Alfred.

COMMITTEE ON NOMINATIONS

W. H. Jordan, Geneva.

W. N. Giles, Skaneateles.

Harry B. Winters, Albany.

James A. D. S. Findlay, Salisbury Mills.

Ralph Bennett, Cortland.

Arrangements should be made so that these committees will get together some time this evening. Provision will be made for a meeting place so that reports will be ready for tomorrow morning's session.

The first thing on our program this afternoon is a talk along the lines of the butter industry. It is very important, it seems to me, that we should at least know about the manufacture and sale of high grade butter. We heard so much last evening about New York becoming a milk shipping state that we are likely to overlook these things. Let us remember that there is still a vast amount of butter manufactured in New York State, and large quantities of that butter is of a lower grade than it should be.

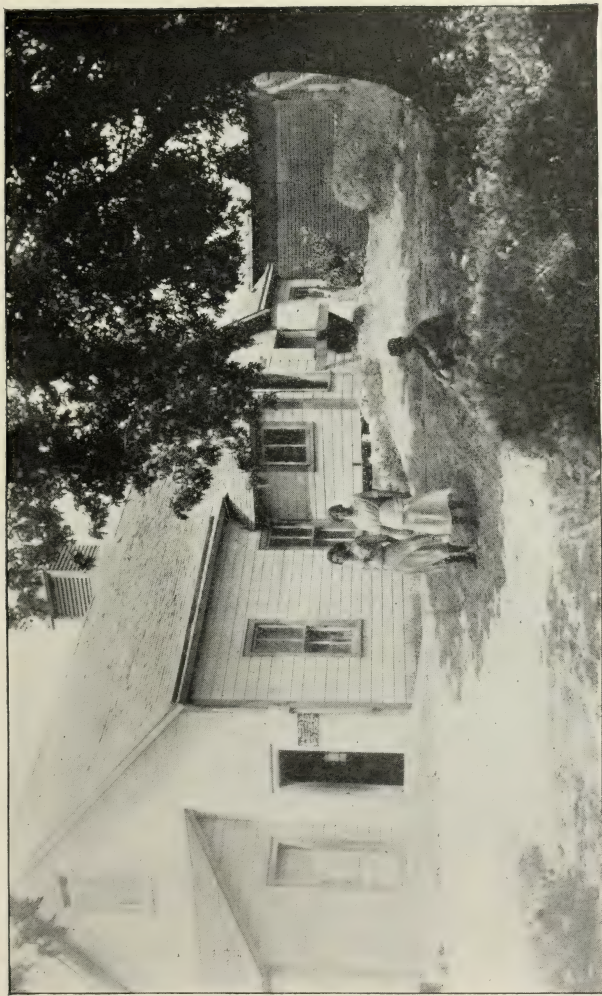
We are fortunate to have with us this afternoon a man who will talk to us and also illustrate his talk with stereopticon slides, a man who has come a long way and has had the reputation of knowing much more than some of us know about butter. It gives me great pleasure to introduce to you Professor C. E. Lee, Assistant Professor of Dairy Husbandry, University of Wisconsin, Madison, Wisconsin.

FACTORS INFLUENCING QUALITY IN BUTTER

PROFESSOR C. E. LEE, MADISON, WISCONSIN

It gives me great pleasure to come to a state like New York to present to you a few facts as we have found them in Wisconsin, and I trust that a number of you will be able to get something out of this talk that you may apply to your own industry here in this state.

The factors that influence the quality of butter manufactured in the various states, or even in different localities of the same state, are very largely the same. A cow may graze on the hill-sides of New York or be fed good, wholesome feed in your ideal



When the inside of the factory is kept neat and clean and the outside attractive it serves as an object lesson to the patrons.

dairy barns and, if perchance that cow should later make her home in Wisconsin and be given the same opportunity as to pasture, housing and dry feed, the expert could not distinguish any difference in the milk she would produce. If the butterfat thus obtained was handled under ideal conditions the commission trade, or the consumer would not care whether the product was branded "New York" or "Wisconsin." Therefore, the various grades of butter ranging in score fully ten points, or even the product that must be made over, is not due to the cow's shortcomings. It is directly attributed to the various methods of handling that the butterfat receives from the time it is produced until it is placed on the consumer's table.

No one branch of the dairy industry directly pertaining to the manufacture of butter should bear the burden of blame. The fault can, however, be attributed to one or all of the following divisions:

1. The farmer or the milk producer
2. The factory owner or manager
3. The buttermaker
4. The commission trade
5. The consumer

THE FARMER TOO OFTEN RECEIVES THE BURDEN OF BLAME

The average dairy farmer when once told what he must do in order that his milk or cream delivered to the factory can be made into butter of highest quality will do his best. The few that do not heed such advice and still can market their product, will in time lower the standard of all. The farmer is interested primarily in producing milk economically, therefore, he must understand how certain foods bear a relation to the flavor of butter. For example, in certain sections of Wisconsin where cabbage or beets are extensively grown, the fall butter has a flavor that is foreign and objectionable. This is equally true of localities where the wild onion makes its appearance.

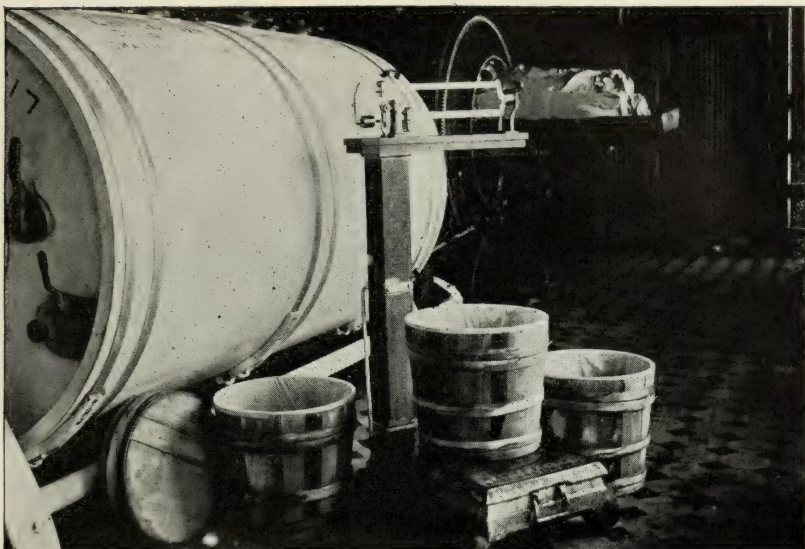
Poorly ventilated barns, cows kept in stalls not properly cleaned and well bedded, carelessness in milking and the handling of the milk or cream have certain influences on the flavor of butter.

The care of dairy utensils, especially the farm separator, must not be overlooked and the frequency with which the product is delivered is one of the large factors in controlling the quality of the butter manufactured.

THE CREAMERY COMPANY

In order that the factory operator may always do his part well, the creamery must be well equipped and so constructed that little or no time is lost by the buttermaker in performing his task. The manager or board of directors of any factory can not place the standard too high with reference to the quality of the raw material that shall be received. When the quality of the butter made in one factory far exceeds that made by a competing institution, it is largely because the cream received varies in quality.

Very often creamery companies, cooperative as well, do not consider that there is only a certain amount of butterfat produced and that amount is not changed by the standard that may be placed on quality. It is to be regretted that the farmer can always find a market for cream no matter what the quality may be. The system of collecting cream as is now in use in several of the butter producing states has greatly lowered the standard. If a creamery serves a community the same under the farm separator system as when whole milk was received, the buttermaker has a chance to meet every producer. A few of the farmers may agree to deliver in turn the product of a community but each one has a chance to become familiar with the operator. When a factory depends on the cream hauler to collect the cream, may that be three times a week or only once, the influence of the buttermaker's personality is lost and he merely becomes a machine. The cream hauling system unifies the standard on the basis of the lowest, because the man in charge of the wagon is not expected to be a judge of good and tainted cream and, even if excellent cream is collected one mile from the factory at six o'clock in the morning and one hour later some tainted cream is placed in the same can, no one is going to question the kind of flavor all of that cream is going to contain when it reaches the factory ten hours later or even the following day. This system



Neat, clean tubs properly prepared always aid the sale of butter. Tare each tub before filling.



What is more attractive than a tub of butter having a neat surface? The tub on the scale contained 64 lbs. of butter. One-half pound was removed, leaving 63.5. The one-half pound was not charged but allowed for shrinkage between factory and the market.

of collecting cream has placed no limit on a factory's territory because the hauler's income often depends on the weight of the load.

When production decreases as it does in several sections, or where no more butterfat is produced from December 1 to May 1 than for the month of June alone, the cream is collected less frequently, therefore good butter can not be produced.

The creamery man's motto should be "better butter" not "more butter."

THE AVERAGE BUTTERMAKER IS WELL TRAINED

The men in charge of the various creameries of any state are, as a rule, trained for their work and willing to advance. At times it seems as if the progress is slow but this is largely due to factory conditions and the impossibility of the buttermaker to deal with local problems. One of Wisconsin's best buttermakers was for a time employed by a cooperative factory and succeeded in making a splendid record on quality of butter sent both to the market and to the scoring exhibitions conducted by the department of dairy husbandry, of the University of Wisconsin. The open cream vat that had been in use for several years finally gave out. Rather than invest in a ripener the board of managers decided to repair the old one. This did not prevent new leaks from appearing and injuring the quality of the butter. At the state convention that year the butter from this factory was criticised by the judges as being injured by the contamination of the cream at the factory. When this information reached the board they told the buttermaker that they were pleased to learn he was not making a fancy article.

That the buttermaker is willing to progress can be forcibly shown by what has been accomplished in Wisconsin by the men who have taken an interest in scoring exhibition work. The general plan of this work as it is carried out in Wisconsin is nearly the same as the one conducted by your own Dairy Department at Ithaca. Let me urge every creamery man in New York to take advantage of this work. With your assistance it can become one of the best channels by which you can keep abreast of the times.

WHERE WISCONSIN MEN HAVE GAINED

By means of the information gained through the scoring exhibitions, a large number of men have been able to make butter of higher and more uniform quality. The gain has not been entirely due to greater efficiency in factory operation but a combination of this and the education of the milk and cream producers by illustrations of exhibition work.

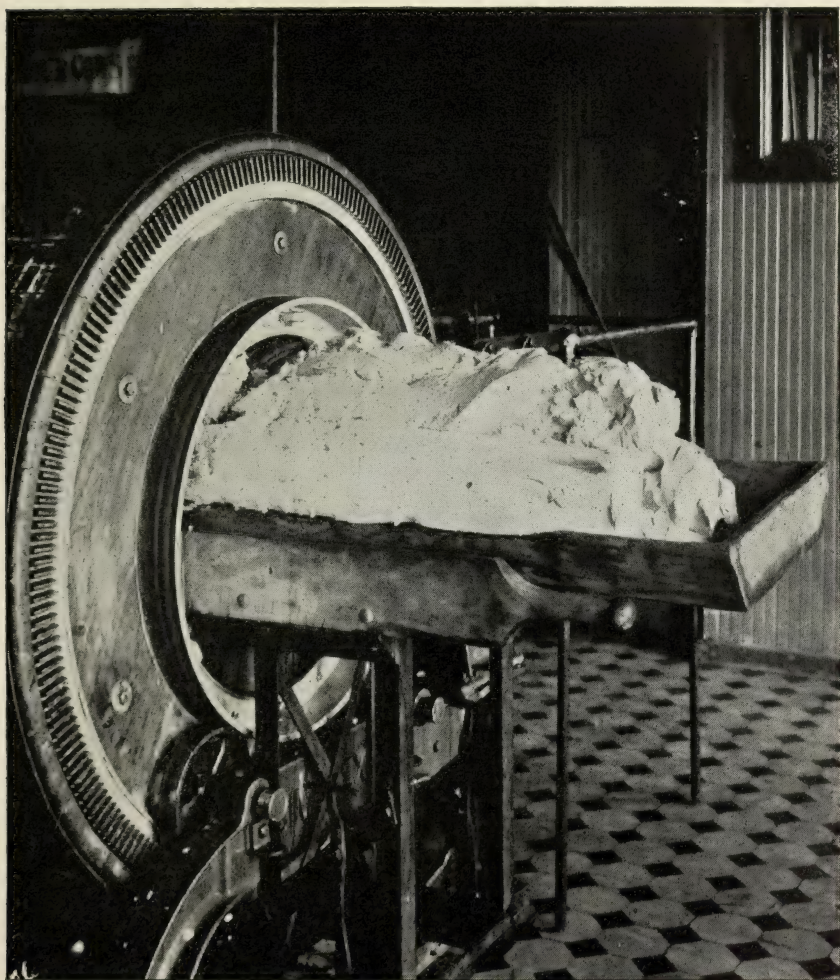
One man who is able to make good butter under favorable conditions had a few patrons who produced cream containing a gasoline taint, and in order to convince the farmers that this kind of cream would taint his butter he exhibited a tub of butter made from gasoline tainted cream. When this tub was scored with some fifty other lots of butter and known to the three judges by numbers only, it was criticised by all of them as containing a "gasoline taint." What better evidence could this man obtain to convince his patrons? In another case a commission firm forwarded to Madison a few samples of butter in order to have it scored. Since the butter was of low quality, extra evidence was necessary to convince the maker as to the actual quality of the butter. The Madison report stated, "This butter is of low quality and the flavor indicates that the butter had been made from cream to which lime had been added." This statement resulted in the commission man obtaining from the buttermaker a complete story of how the butter was made. Scores of this kind of illustrations could be cited to show how the creamery industry has been benefited by the exhibition work.

INDIVIDUAL MEN HAVE MADE PROGRESS

One man received a score of 92.66 on his first exhibit, and 95.83 on his eleventh, the average score on the first six exhibits being 92.69, and an average of 94.51 on the last five. Another man increased from a score of 90.83 on his second exhibit to 95.33 on his seventh.

One man had a score of 93.66 on his first exhibit, which was the only tub out of 18 that scored under 94.00, and his last seven scored between 96.16 and 96.25.

The following illustration represents one factory's output for four years: The average score on twelve exhibits made May, 1909,



Ready to be packed.



to April, 1910, was 93.97; for 1910 to 1911, 94.42; for 1911 to 1912, 94.65; and for the twelve months, May, 1912, to April, 1913, an average score of 95.12.

EACH YEAR A GAIN IN QUALITY

Since the scoring exhibition work in Wisconsin in May, 1907, was taken over by the dairy department, the creamery industry has undergone a marked change. For that year some 29 per cent. of the exhibition butter was made in factories receiving nothing but whole milk, with a gradual decrease, until last year only 13 per cent. was whole milk butter, 59.3 per cent. of the butter made from cream skimmed on the farm, and 27.7 per cent. in factories receiving both milk and cream. Even with these changes, the average score of some 1,000 exhibits entered each year, has increased. In 1908 the average score on the whole milk butter was only 92.15, and five years later, 94.35. The milk and cream butter increased in score from 92.36 to 93.19, and the butter made in factories that receive cream only, has increased from 91.24 to an average score of 92.23 for the last year.

A MARKED IMPROVEMENT IN WORKMANSHIP

During the third year of the exhibitions, 34.18 per cent. of the butter was cut in score because the body was not perfect. Four years later this defect appeared in only 11 per cent. of the butter. For the four years, the per cent. of butter that was either mottled or wavy in color, decreased from 28.23 per cent. to 7.9 per cent., while the proportion of the butter that was cut in score for over salting has remained practically unchanged.

The improvement in the body has been largely due to a change in the method of operating the churn. In July, 1909, when 59.4 per cent. of the exhibition butter was cut in score on body, 26.8 per cent. of the men that reported how the butter had been made, worked the butter in the washwater; out of this number 87 per cent. of the butter was either criticized or cut in score on account of the body or color being defective. In July, one year later, when 8.5 per cent. of the butter was cut in score on body, only 7 per cent. of the butter had been worked in the washwater from two to eight revolutions. The exhibit which had been worked the highest number of revolutions received the highest cut in

score on body. Only one of the exhibits of butter that had been worked in the washwater prior to salting, was not criticized as being oily in flavor, wavy in color, or cut in score on body.

According to the judges' remarks on the score sheets, it appears that when the butter was cut in score on body it was weak, greasy, or both. A few lots contained a tallowy body and others were not worked sufficiently.

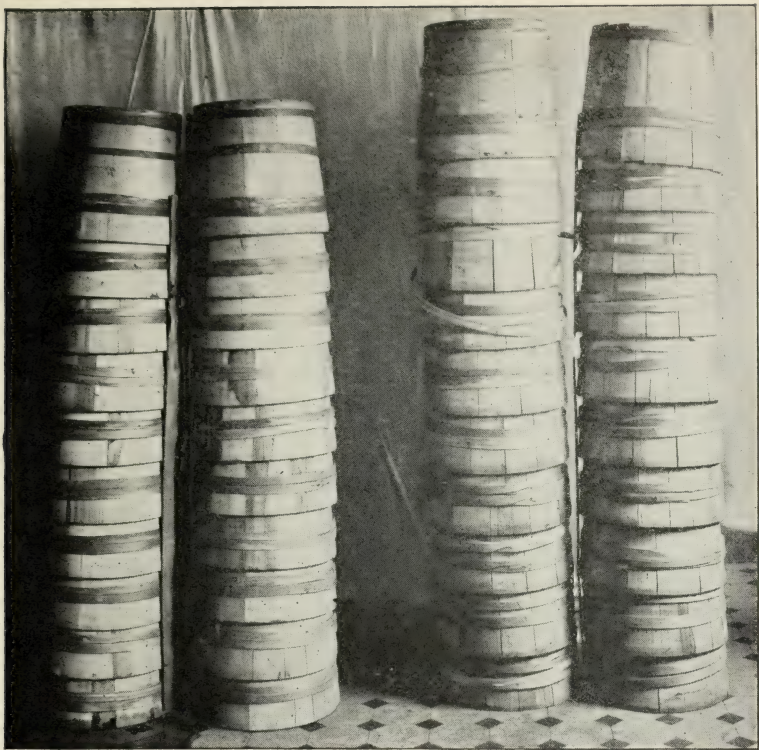
Other reasons why butter was not perfect in body may be enumerated as follows:

1. Pasteurizing cream too rich in butter fat
2. Not changing churning temperature closely with seasonal changes
3. Not holding the cream sufficiently long at churning temperature before starting the churn
4. Attempting to work the butter when the granules were too cold for proper uniting, or when too warm
5. Working the butter at intervals instead of continuously
6. The buttermaker not counting the number of revolutions the butter was worked but judging by the appearance of the butter, thus under or over working
7. Not properly washing the butter, leaving the brine milky
8. Overheating of the butter in transit
9. The neutralizing or treating of the cream before pasteurization, often causing a mealy body

WHY THE COLOR OF THE BUTTER HAS IMPROVED

The improvement in the body of the butter has naturally had a tendency to reduce the number of exhibits that were mottled or wavy in color. Whenever the condition of the granular butter is properly regulated so as to prevent massing before salting and the butter is properly worked, mottles will not appear. A very large per cent. of the butter that was cut in score for defective color had been overworked.

During the summer months the overheating of the butter in transit has a tendency to change the uniform distribution of the component parts of the butter, consequently upon rehardening, the color will not be uniform. At times the construction or adjustment of the rolls of the churn prevents a uniform working of the butter. The rolls having small grooves favor wavy butter.



Bundles of tubs representing two different shipments received at a factory. The tubs to the right should be rejected. Note the uniform finish in the two bundles to the left.



Two methods of soaking tubs that answer the purpose. More satisfactory results are obtained by submerging the tubs in a tank of water for a period of 4 hours.

SALT CONTENT CAN BE REGULATED

When the butter has been properly salted so as to prevent a gritty condition or the appearance of undissolved salt, the score will be perfect. In order to make butter having a uniform salt content, the proportions of free water, butter and salt in the churn must be the same. Every factory operator should examine the butter when one-third worked, as to condition and amount of salt. If salted too highly, add water and if lacking, additional salt may be added.

EXHIBITIONS HAVE AIDED IN MAKING BUTTER SHOWING UNIFORMITY

One of the factors that will aid the creamery men to dispose of the butter to a selected trade, is that of maintaining a uniform, clean flavor and salt content. Whenever the quality and composition vary on a certain brand of butter, it reduces its selling value. In 1910, 33.6 per cent. of the butter entered in the exhibitions contained between 13 and 14 per cent. water, and 64.4 per cent. contained between 13 and 15 per cent., and for the following year the results were the same. Fifty-two per cent. of the butter contained 82 to 84 per cent. fat, and 46 per cent. contained 2 to 3 per cent. of salt.

Whenever the natural clean flavor found in milk produced under sanitary conditions has been destroyed or impaired, no skill of the buttermaker can restore it.

GOOD BUTTER ALWAYS IN DEMAND

The manufacturers of fancy butter can always find a ready market, while those making the lower grades may ship to several commission men in one season. It is always a credit to the factory to be able to say that a leading butter house has for years handled their entire output. If one commission firm finds that the butter is not up to standard, the creamery should follow their suggestion and improve, rather than to turn down the advice of the man who is in a position to know. It must be admitted, however, that all commission firms do not demand the same grade of butter in order to satisfy their trade. This condition is a drawback to advancement.

Several factories in Wisconsin are making fine butter and others a very low grade, but the returns do not always indicate a

difference in quality as illustrated by the exhibition men. In 1909 one factory operator entered 12 exhibits with an average score of 92.8, and 50 per cent. of the butter scoring 93 to 95.16. In 1910 he entered 11 exhibits, scoring 92.3. This man entered from May, 1911, to February, 1912, 9 exhibits with an average score of 94.1, all exhibits scoring between 93.16 and 95.16. From March, 1912, to April, 1913, the average score on 12 exhibits was 91.9, and for the five exhibits entered since May, 1913, the average score was 91.3. Only one tub out of the last 17 has scored above 92.33 and that was the 1913 state convention tub. When this man first began exhibiting butter his product was made from nearly all whole milk, but the quality was not as high as it should have been because of lack of perfect workmanship. Fifty-five per cent. of his first 9 exhibits were cut in color and only one, or 2.4 per cent., out of the other 41 entries. Thirty-three per cent. of the first 9 tubs were cut in score on body, and 11.5 per cent. of the last 26. The butter from this factory began to decrease in quality corresponding to the increase in pounds of butterfat delivered in cream skimmed on the farm. Since the factory separators have been taken out, the quality of the butter exhibited at Madison has remained as a "low extra first."

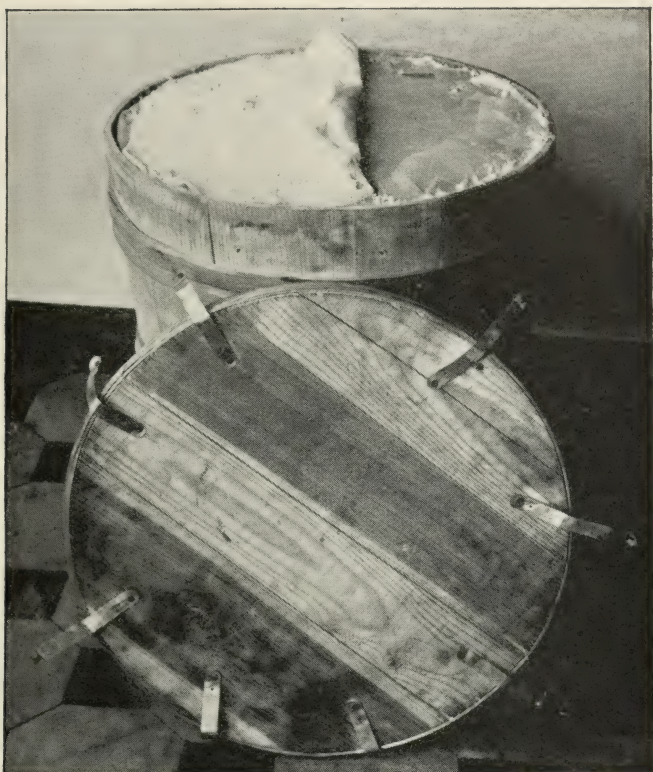
A letter was written this man regarding his November exhibit. One of the questions asked was, "What price are you receiving for your butter at present as compared with the price received when the butter was of higher quality?" On November 24, 1913, it was answered as follows: "In reply to your question must say that we are getting a higher price at present than we received for the butter that averaged two points higher. Since last spring we have received one-half cent over the Elgin quotation f. o. b. our station. This is one-half cent more than we received in former years. I think if there was a higher price paid for butter scoring 95, more of it would be made. I have no argument to give a farmer to get him to bring better cream, as we are getting more for our butter than any of our neighboring factories. Every day I get cream that will make butter scoring 95, but the poor, tainted cream brings it all to a lower grade. I do not accept cream that is too tainted, but on the other hand I do take a lot that could be much cleaner in flavor. If our patrons



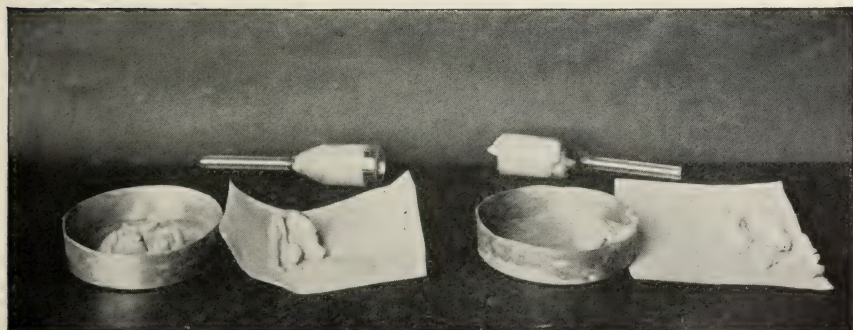
The appearance of the package of butter is important — Tub No. 1 (left) shows a satisfactory finish on the top; No. 2 (middle) the proper overlapping of the parchment liner at the top; and No. 3 (right) too much overlapping of the liner and too much salt on the top of the package.



Tubs of butter ready for the market. On the tub to the left the cover is properly fastened while on the tub to the right, the tins extend too far over onto the cover and on one tin the tacks did not go into the tub at right angles.



The liner extends too far over onto the top of the butter. One-half inch is sufficient. Too much salt had been placed on the top of the cloth circle. The cover should be fastened with four tins placed one-half inch from the edge of the cover.



When butter is weighed in making determinations for water, place it in the center of the dish, for salt in the center of the parchment paper and for fat the upper edge of the funnel must be free from butter. The dish, paper and funnel to the left illustrate the proper method.

could be told that a better grade of raw material would mean greater returns, I believe that I should get nothing but good cream."

Two other illustrations can be used to show that the man making the poorer grade of butter has sometimes the advantage in marketing. Two factories located not over twenty miles apart were making butter of equally high quality three years ago. The one changed from whole milk to making butter entirely from cream skimmed on the farm, while the other one has remained a whole milk factory. Twelve exhibits received from this whole milk creamery last year were given an average score of 94.94. Every patron takes pride in producing milk of excellent quality. The buttermaker is very thorough and neat at his work, and his ability has during the past year been twice honored at state contests. The factory's output is sold at one cent per pound over a certain market quotation f. o. b. station.

The other factory does not consider quality at all but rather quantity, some of the cream being delivered only once per week. The average score on the last 16 exhibits entered at Madison was 91.3, the highest score being 92.66, yet the butter is being sold at only one cent less per pound than the product made in the whole milk factory. When the management of this institution was asked to cooperate in attempting to improve the quality of the raw material, they were not favorably inclined because they felt that the butter was now being sold at market quotation.

These two grades of butter are not sold to the same firm. The one buying the whole milk butter would not even consider the product of the other factory, because they do not have an outlet for this grade.

These facts are presented to show that if it were impossible for the lower grades of butter, such as is now being made in the factories receiving nothing but farm skimmed cream of low quality, to be sold for a price that seems high compared with what is being paid for the fine, whole milk butter, more good butter would be made.

Several of the men that exhibit butter that very seldom grades above a low "Extra First" claim that at Madison the butter is scored too low because they are getting top prices. Several of the large commission firms are making a wide difference in the price

that is being paid for the two grades referred to and, judging from the condition of the markets at the close of the season, the variation will be still greater at the opening of the coming year.

The manufacturers of butter are the same individual patrons, viz., if a complaint is made on quality and the price cut, a change will be made to a new commission firm.

A short time ago a factory owner wrote, "During the past few years I have made a low grade of butter but I must make an effort to improve, because of late I have found it more difficult to dispose of the product."

A greater variation in the price paid for the various grades of butter will be a big factor in regulating future quality of Wisconsin butter and it will be welcomed by the makers of the good product.

THE CONSUMER SHOULD KNOW GOOD BUTTER

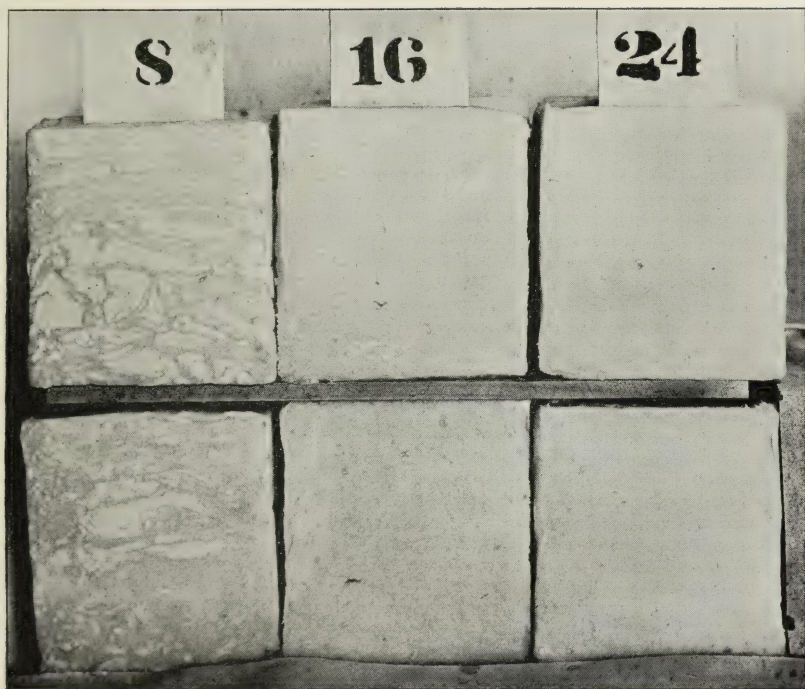
Every consumer should at least be able to distinguish between the flavor found in a fancy article and that of the lower grades, otherwise there is not the incentive for continuing to supply the butter of high quality. The creamery industry in a measure is at fault for not educating the public as to the rich, creamy flavor found in the best butter made. A student once placed a 97 score on a tub deserving of only 88 and a high score on the low grade sample. When questioned as to why he made such a mistake he replied, "The tub on which I placed the high score contained the kind of flavor found in butter I have been used to eating."

For example, if some exhibit could at times be made at some National gathering where the best product could be served on a wafer, the influence thus gained would create a demand for more good butter than is now being produced.

At times it seems as if the average consumer does not know good butter; it is therefore apparent that our good product must be advertised by some other method than the printer's ink. If the public demanded nothing but the fancy article, the lower grades would not be manufactured to any great extent.

MR. ELWOOD: I know you have all enjoyed the professor's talk.

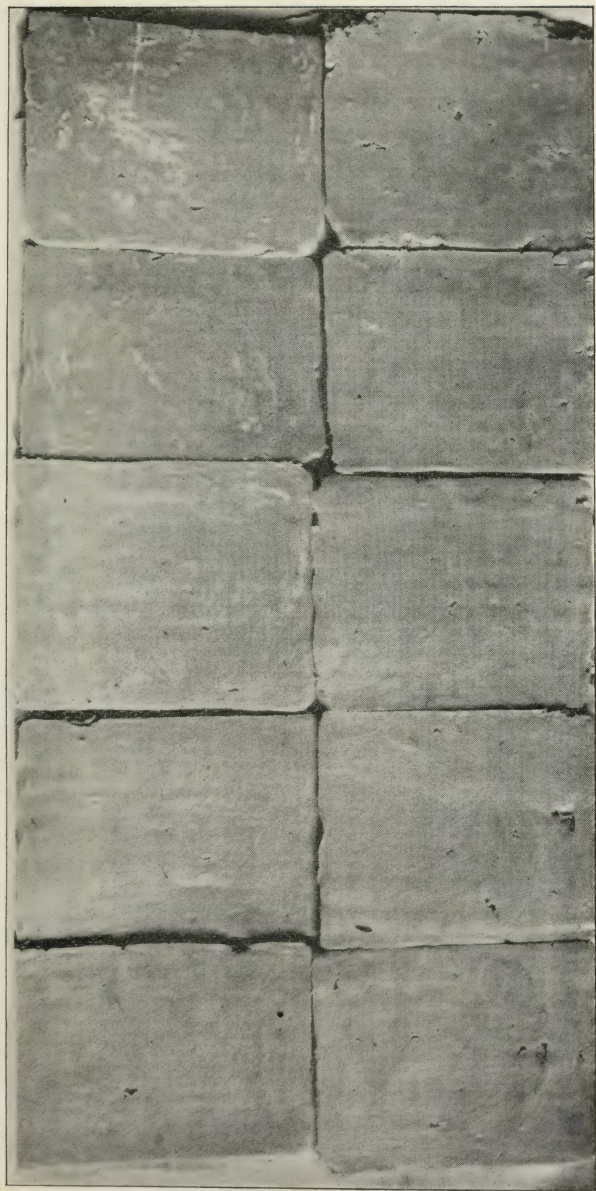
It will be my pleasure to introduce as the next speaker, Mr. John Gordon of Wheat's Ice Cream Company, Buffalo, N. Y., representing the ice cream manufacturers, who will talk to you on "The Ice Cream Manufacturer and the Dairyman."



The working of the butter until the salt has been uniformly distributed eliminates mottles. The 3 upper squares of butter were packed from a churning where the granular butter was washed and the lower 3 were not washed. The figure at the top of each column indicates the number of revolutions the butter was worked, in a Perfection churn, after salt was added.



Four illustrations of the same butter. Upper left, properly worked; upper right, overworked; lower left the two upper mixed while the lower right is one-third worked.



Whenever salt is thoroughly mixed with granular butter and allowed to remain in that condition for 20 minutes mottles may not appear even in unworked butter. The first two squares represent salted granular butter packed but not worked. Each succeeding 2 were worked 6 revolutions more than the preceding 2. Note the wavy color in the last 2 squares of the upper row due to working butter too cold.



Butter having the desired degree of firmness will mass during the first few revolutions that it is worked. Upper row desired firmness and the lower row too cold when worked. First pile of each row washed granular butter and each succeeding pile was worked eight revolutions more than the preceding one.

THE ICE CREAM MANUFACTURER AND THE DAIRYMAN

JOHN GORDON, BUFFALO, N. Y.

GENTLEMEN: Those of you who have read the address which I made at the recent National Dairy Show on a similar topic will have familiarized yourselves with much of that which I shall consider today. While you may not receive new information, it is my hope that the reiteration of former statements will cause you to remember and consider more carefully what I have said. The list of those officially invited to this convention embraced the producers, the manufacturers, and the consumers of dairy products. I hope that they are all here, because I want to impress upon them the importance of the ice cream industry in its relation to the dairy industry as a whole; also the value of a mutual understanding of matters which affect the dairy industry in general and those which affect the ice cream industry in particular.

The ice cream industry has accomplished three great benefits for the dairy industry. First, through the absorption of the milk surplus at a time when if it followed the old channels the market for dairy products would be shattered, it has equalized the value of dairy products, making that valuation more uniform the year around. The general level of the prices of dairy products has been raised by its influence and at the same time there has been a material reduction of the margin between high and low.

Second, the ice cream industry has rendered valuable every constituent part of milk, for not only is it an enormous user of cream and milk, but it also consumes enormous quantities of condensed milk.

Third, by affording a market for great quantities of sweet cream, it is securing for the whole dairy industry, milk and cream of better grade.

We will now discuss the specific gain it has brought to the various interests present, starting with the producer. What has the ice cream industry done for you? It has made it more profitable for you to keep cows and it will make it still more profitable in the future. It has made the prices for milk and cream more uniform the year around. It has made valuable every constituent part of your whole milk. It has made skim milk too valuable for stock feed. It has given you an incentive toward the production

of better cream and milk by making a market for great quantities of sweet cream and milk.

The ice cream industry has attained its greatest growth during the last ten or twelve years. It must be regarded as more than a coincidence that the general level of prices for dairy products has risen materially during that time. From 1899 to 1909 the value of dairy products rose 109.9 per cent. in value. The 1900 census valued dairy products at \$130,783,349; in 1909 they were valued at \$274,557,718, an increase of 109.9 per cent. The growth of the ice cream industry is in part responsible for this increase.

While there was considerably more than 150,000,000 gallons of ice cream manufactured this year in the United States, we will take that as a tentative basis for figures showing the amount of dairy products which the ice cream industry uses annually. The great bulk of commercial ice cream is made from milk, cream and whole condensed milk. The milk and cream are the basis of the ice cream flavor and the condensed milk through its high total solids content provides body and substance for the ice cream. On the basis mentioned, the ice cream industry used this year 30,000,000 gallons or 250,000,000 pounds of cream, 255,000,000 pounds of whole milk and 15,000,000 gallons or 132,000,000 pounds of condensed. Figured on a basis of gallons of whole milk, the cream represents 150,000,000 gallons of raw milk, the condensed represents 45,000,000 gallons of raw milk and this added to the 30,000,000 gallons of whole milk used to mix with the cream and condensed makes a total of 225,000,000 gallons of whole milk. Taking fourteen cents as the average price paid per gallon, the ice cream industry paid the producer of milk \$31,500,000 for its raw materials during the year 1913.

What does it mean to the producer to make every constituent part of the whole milk valuable? Go back to the census reports of 1899. In that year there was sold over two and one-quarter billion pounds of skim milk against only 352,000,000 pounds in 1909. By another census there will be scarcely any skim milk sold. This great decrease in the amount of skim milk marketed is due for the great part to the growth of the condensed milk industry and to the lessening number of whole milk creameries. From 1904 to 1909 the number of establishments producing condensed milk solely or having it as their product of chief value increased 67.9 per cent.

and since that time many pans have been installed in creameries. In 1899 there was produced 186,921,787 pounds of condensed and in 1909 there was produced 494,796,544 pounds, an increase of 307,874,757 pounds or 164.7 per cent. The value of the condensed in 1899 was close to \$12,000,000, while in 1909 it was about \$33,500,000, almost treble in value.

We can regard it of especial significance that more than half of the condensed milk manufactured in 1909, or 280,000,000 pounds, was unsweetened and it is this product which the ice cream manufacturer uses largely. It is of further significance that the states wherein any great amount of condensed milk is produced are either great ice cream states or else supply ice cream centers. New York and Illinois produced 47.5 per cent. of the total in 1909; Ohio, Michigan, Pennsylvania and Wisconsin accounting for a great part of the remainder. An approximate estimate would be that the ice cream industry uses something short of one-third of all the condensed milk manufactured yearly. Unsweetened condensed milk would seem to have a limited usage. It would appear that only plants having artificial refrigeration could utilize it and unless the remaining quantity of unsweetened is canned and sterilized by the manufactories, even more may be used for ice cream manufacture.

The Ice Cream Trade Journal is the only agency which has ever taken the trouble to compile figures on the ice cream industry. Official figures are lacking because the interest of the national and state governments in the past seems largely to have been to prosecute the ice cream man while paying no heed to the upbuilding of his industry. You must consider then that the responsibility for the correctness of the figures I give you must be divided between the Ice Cream Trade Journal, prominent ice cream manufacturers with whom I have talked, and myself.

The 225,000,000 gallons of whole milk which the ice cream industry uses annually creates something of a gap in the available milk supply. Yet the production seems almost to keep pace with the consumption of milk. It will continue to do so as long as it remains profitable to keep dairy cattle, and if ever more cattle and more milk is needed, both can be secured by payment of higher prices for milk.

The 1900 census showed the number of dairy cattle on farms in this country to be 17,135,633 and the 1910 census showed 20,625,432 dairy cattle, an increase of 3,489,799, or a 20.4 per cent. increase. The per capita consumption of whole milk for 1900 was 290.1 pounds per annum, or .79 of one pound per day. Our population during the last decade increased 21 per cent. If we take the 1900 per capita consumption of milk as a proper standard for today, our dairy cattle should have increased .6 of 1 per cent. more. This is probably an over optimistic estimate, however, for the growth of the ice cream industry took place between the 1900 and 1910 census and the milk used by it is not all new milk. During the summer months the ice cream man commonly experiences the greatest of difficulties in getting raw materials; the city milk dealer has the same trouble to a less degree. Now if such conditions indicate a shortage of milk, rather than an unequal distribution of the amounts of milk produced as regards seasons, I feel that the ice cream man will do all in his power to help relieve the shortage. The ice cream industry from the tone of every convention which I have attended wants to cooperate with the dairyman in raising the average production per cow from 362 gallons per annum to a much higher figure.

To raise the production per cow from 362 gallons per annum we must have better cows. I feel that every manufacturer who is buying direct from the farmer and who owns his own creamery is willing to allow that creamery to lead in cooperative testing society movements. The creamery is the logical center for such an activity and from its force could be recruited men to make the monthly tests of each cow and its equipment could be used for the fat tests.

The ice cream industry is furnishing a stimulus towards the production of better milk and cream by furnishing a market for larger quantities of sweet cream and milk. Whatever may be said to the contrary, the farmer can not produce clean milk unless he can make a profit from that milk. You can not blame him. In my observation, wherever the farmer is paid a price consistent with quality you will find him producing clean milk. Clean milk must sell for more than unclean milk and any factor which fur-

nishes a good market for quantities of clean, sweet milk tends toward the elevation of the sanitary plane in the production of all milk.

The ice cream manufacturer can not make a clean ice cream unless the producer supplies him with clean raw materials. The ice cream manufacturer is therefore extremely desirous that the dairyman produce the cleanest grade of milk which he can afford at the good price usually paid. I believe that every creamery which is owned by an ice cream manufacturer will make sediment tests on every patron's milk, thus assisting in the work of cleanliness. It is being done now. At the producer's end this means clean methods, clean utensils, clean cows, clean stables and adequate means for cooling and holding milk at a low temperature. This latter great essential in most localities will require the construction of ice houses.

Let me discuss the relation of the ice cream manufacturer to the creamery man. The creamery man must consider the ice cream man as on an equal footing with him. Let us compare the amounts invested in the various branches of dairying and the ice cream business. The 1910 census states that at the time of the census taking there was \$43,017,467 invested in butter factories and equipment; \$9,028,906 invested in cheese factories and equipment, and \$19,237,242 in condensories and equipment.

The Ice Cream Trade Journal states that in 1912 there was \$50,000,000 invested in ice cream factories and equipment. This figure I am assured is really a low estimate and that \$75,000,000 is a conservative figure for a 1913 estimate. Remember that the ice cream man is not only a manufacturer, he is also a wholesaler and retailer. He carries a heavy investment in a delivery system. The big establishments have ice plants. From the very nature of things they are much more expensive buildings than the best constructed creamery.

The bulk value of the factory products are considerably more in the case of the creamery industry than the ice cream industry, although the bulk retail valuation seems to be about the same. In the 1910 census the factory valuation of butter was placed at about \$179,500,000. Figures which the ice cream industry could gather would show the factory valuation of its products to be about

\$100,000,000. This statement may open the eyes of some people who think that the profits in ice cream are comparatively large. Such observers fail to consider the cost of artificial refrigeration, ice, salt and a delivery system. The ice cream industry must carry an enormous overhead charge the year around and yet do a paying business for only five months. I feel that the ice cream manufacturer who is making 10 per cent. year in and year out, on his whole factory proposition, is on an excellent footing.

What benefit does the ice cream industry bring the creamery industry? First, the 225,000,000 gallons of whole milk which the ice cream industry used this year did not go direct from producer to ice cream factory. It had to pass through the hands of the middleman, the creameryman and the condenseryman. In addition to the \$31,500,000 which the ice cream industry paid the producer for the raw materials, it had to pay the creamery and the condensory a handsome profit for assembling the whole milk and turning the greatest part of it into condensed milk and cream. This then is the first gain. It increases the volume of the creameryman's business and the size of his profits. Second, the creameryman can get more for his sweet cream when he sells it to the ice cream manufacturer than he can from making it into butter. After I made this statement at the National Dairy Show a western creameryman said, "That is true, but look at the cream you are taking from the creameries. It might be made into butter." My reply was that he undoubtedly was not in the creamery business for his health, but for profit; that ice cream had grown to be an essential and that it made no difference to the creameryman what became of the cream as long as he received his money for it. It stands to reason that if a great quantity of cream is consumed by the public as ice cream, it will create a greater demand and price for the remaining cream to be made into butter and a higher price for the manufactured butter. Third, the ice cream industry through elevating the sanitary plane of milk production is securing for the creameries, milk and cream of better grade.

Many creameries are in a position to install condensing pans and sell condensed milk to the ice cream manufacturers, thereby

increasing their profits, by being able to profitably utilize all of the whole milk.

I shall here give the same injunction to the creameryman that I did to the producer. Give the ice cream man clean raw materials so that he may make a clean ice cream.

Lest the consumer conclude that the ice cream industry has injured his pocket book by raising the price of dairy products, it should be said that he is as much concerned in the equalization of the prices of dairy products as the people who produce and manufacture them. It is better that he pay a more uniform price the year around than a very low price for a few months and a much higher price the rest of the year. Under such a system he probably would be forced to deny himself the use of certain dairy products during the high price period. Under the system which we are now working, in the upbuilding of which the ice cream industry has aided, the consumer is enabled to place on his table throughout the entire year all dairy products at prices consistent with the cost of production and manufacture. It should always be remembered that when additional gain is brought to the farmer that the urban population receives direct benefit thereby.

The average consumer probably realizes that ice cream is a substantial food, the justification of which belief is attested by the fact that commercial ice cream commonly contains over 30 per cent. total solids.

It should now be clear to all present that every branch of the dairy industry has a selfish interest in the upbuilding of the ice cream industry. Knowing what is best for his individual industry, the ice cream manufacturer is extremely desirous that the various branches of the dairy industry look upon certain matters with the same view and lend their moral support when attempts are made to force inhibitive legislation upon the ice cream industry. It can readily be seen that any move which curbs the growth of the ice cream industry kills the market for great quantities of milk, cream and condensed milk. Ice cream consumption secures the usage of milk, cream and milk products, which otherwise would not have been used. It does not hurt the sales of butter, cheese or other milk products. If the public did

not eat ice cream in its leisure moments, it would not at that moment be eating any form of milk product.

A factor of difference, which has existed during the last few years, between the ice cream industry and the food commissioners in several states has been the attempt to fasten butterfat standards on the ice cream industry.

The dairy industry in general should be impressed with the fact that the ice cream industry does not oppose fat standards because it desires to gobble up all the money in sight, but that its stand is based on extremely logical and laudable motives.

The best way to judge what is a right course in any particular instance is to see what has happened to people who have followed different courses in dealing with the same matter. It has been contended that ice cream should be made from cream, sugar and flavor solely. The best way to discredit this notion is to look about and nowhere will you find a great ice cream business—in fact of any size worth mentioning—which has been built up on a straight cream formula. Again, commissioners have agitated a high butterfat standard and we have the significant controverting fact that nowhere is there a great ice cream business built up on a high butterfat formula. The ice cream manufacturers know what the public wants. It does not want an over rich product because it can not eat enough of it. If the public wanted the high butterfat content ice cream then the manufacturers of the medium butterfat content product now generally found on the market would be in the minority.

Some might say that by cheapening the cost by the use of condensed milk, the manufacturer of the medium fat product drove the high fat man out. But the ice cream man knows that to be wrong because good condensed costs very little less than cream and if you eliminate butterfat and add condensed, you economize very little, but you get a much better article.

Think of all the ice cream mixtures you know and figure the cost; you will find ten cents a gallon will cover most of the price variations. This is because when you cut down one ingredient you have to add the other because the solids must be there.

I know that the creamery man who makes ice cream and the small ice cream manufacturer occasionally feel that they need a standard to protect them from the large manufacturer of ice

cream, but their reasoning is fallacious. The small difference in the cost of the different formulas is not the factor which enables the big manufacturer to undersell. The ice cream business is exactly like any other business when it comes to competition. It is the business and factory organization of the big manufacturer, his larger plant and more expensive equipment. No standard could prevent him from underselling if he had these things and so desired.

If the creameryman is troubled by the competition of a small manufacturer of cheap ice cream, no standard would make that man stop selling cheap ice cream. The cheap ice cream man is going to have cheap tools and cheap labor, his ice cream is cheap because it was made by cheap labor in a cheap fashion and he supplies a cheap trade.

Few ice cream manufacturers make their ice cream exactly alike. This is their vital reason for objecting to standards. They desire to hold intact the individuality of their product. Since the manufacturer's formulas vary and each man will swear that his is the best, whose product would be taken as a standard? If the law prescribed that all ice cream should be made alike, the public would not be able to discriminate between different manufacturers' products. Every ice cream eater likes a particular make of ice cream because it best suits his taste. If he buys of one manufacturer and does not like his ice cream, he is going to buy next time from another.

The ice cream industry in brief believes that the public should be accorded full credit for its intelligence in ice cream matters and be allowed to select its own ice cream just as it chooses other commodities which it finds upon the market. It takes the stand that the butterfat content is not indicative of the value of an ice cream, but that its merit should be judged by the quality of the materials used, their proper blending and the care and cleanliness with which they are put together. The moral support of the dairyman, the creameryman, the cheese manufacturer and the milk dealer in this matter, will help greatly. They have only to remember that when the ice cream man cuts his butterfat content, he adds condensed and that one is about as valuable as the other. If anything, condensed is more valuable because it allows the use of all the milk.

There is some misapprehension on the part of some people as to the attitude of the ice cream manufacturer towards sanitary requirements. I have been asked why the ice cream man opposed them saying that he was not ready for a sanitary code. I have never heard any such statement by an ice cream manufacturer. They have never objected to conforming to any reasonable sanitary regulations. What they have objected to and will continue is an attempt to form an estimate of the sanitary conditions of an ice cream factory by making a bacterial analysis of the product of the factory. Suffice it to say that if the ice cream manufacturer gets clean raw materials he will make a clean ice cream.

There has been a slight tendency to question the motives of the ice cream manufacturer in using homogenizing and emulsifying devices. This likewise has been due to a misapprehension. The criticism has possibly not been directed toward the homogenizing of raw cream but towards the homogenizing and emulsifying of butter with skim milk or water and skim milk powder. There is no violation of the laws of sanitation here nor is there any fraud because the resultant cream is absolutely identical with fresh cream. Any one who has ever made cream from butter knows that only the best unsalted sweet cream butter can be used because the bad flavor of poor butter will be exceedingly prominent in the finished product.

It stands to reason that there is no economy in making cream from butter because the profit of the creameryman for churning the butter must be taken into consideration. It is a question of absolute necessity with the ice cream man. When he can not secure the raw cream he must perforce make it from sweet cream butter. And if he did not have these homogenizing and emulsifying devices to fall back on he would lose business through failure to supply demand, and just so much dairy produce would go unconsumed. So long as the homogenized or emulsified cream is absolutely wholesome and identical with raw cream its use is not subject to just criticism.

These latter matters mentioned are not of vital interest in this state. They are merely touched upon that you may understand the ice cream man's attitude toward each of them. There should never occur any cause for friction between the dairy interests and

the ice cream industry. The statistics given and the statements made, reveal only the grounds for the greatest of friendly feelings of the producer, the creameryman, the condenseryman, the cheese factory owner and the milk dealer towards the ice cream man. And that feeling of friendship will continue as long as the ice cream industry acts as a price equalizing factor, as a factor in improving the milk supply and as a factor which assists in making valuable every constituent part of milk.

MR. ELWOOD: I am sure we have all enjoyed Mr. Gordon's address, and if there is nothing further the meeting will stand adjourned until tonight at 8 o'clock.

FOURTH SESSION

WEDNESDAY, DECEMBER 10, 8 P. M.

MR. ELWOOD: In opening the evening program I should like to ask if there are any members of the nominating committee here, that they immediately report to the secretary's office and meet Dr. Jordan, chairman of that committee.

Tonight we have with us a gentleman from a sister state who has come here on what I trust is a pleasant journey, and I understand he is going to turn over to us the keys of the state of Vermont. The gentleman who has arrived here tonight is active in the dairy interests of the State of Vermont, and I take great pleasure in introducing Mr. W. E. Carter, President of the Vermont State Dairymen's Association.

MR. CARTER: I came here thinking that I should learn something, and I shall go home feeling that I am amply repaid for my trouble. I did not come as a speaker, but to extend, not only to the officers of this Association but to the individual members, an invitation to our meeting in January. I do not know that we can teach you anything, but you may learn by our mistakes, and I believe it will be worth your while to come up and see how the little state of Vermont conducts its dairy matters. Understand that I am not saying that we do it any better than you, but if we do it in a different way it may give you an idea whereby you can better your own association. I know in that way I have learned something here today and I shall go back with several new ideas.

MR. ELWOOD: Tonight we have with us a man of whom I have heard for a number of years. I have a friend who goes up into Michigan and has bought much of their butter. He has always been talking about a man named Hull, the President of the American Dairy Farmers' Association and Secretary of the National Dairy Union, who is one of the famous men of the West and one to whom I think you will enjoy listening; a man who from practical experience and association in this line of work is well qualified to give you an address which you will enjoy. I take pleasure in introducing Mr. Hull.

MUTUAL RELATIONS OF THE DAIRYMAN AND THE DAIRY MANUFACTURER

N. P. HULL, DIMONDALE, MICHIGAN.

I am a dairy farmer, having specialized in this line. My father died when I was very young, and when old enough, I took hold of the business. I immediately began to figure how I could improve the farm. Two things especially that I learned were: first, I must improve the fertility of the farm and grow larger average crops; second, the advisability of a special line in agriculture as well as in other professions. My conclusions and figures led me to dairying, which has proven a solution of the proposition on my farm. What I say about dairying, so far as that end is concerned, I have learned by actual experience.

As a farmers' institute lecturer in Michigan for about fifteen years, and as Master of the State Grange, I have traveled over the greater part of the state of Michigan, and I presume there is no man in the state who has visited more farm homes than I. As president of the American Dairy Farmers' Association and as lecturer of the National Grange, it has been my fortune to travel and visit farms from the Atlantic to the Pacific ocean. I have seen some things that have aroused me in a way, and I want to bring this subject before you that you may understand why I am going to talk to you as I shall tonight.

In my travels through the various states, I have seen men on farms, and on dairy farms, working hard from day end to day end, and the good wife working harder than any woman should work, yet I have noted that after a year has gone by, or perhaps ten or twenty years, all that man and his wife have to show for their hard work is the bare fact of having existed. It appeals to me as being pitiable, to think that a man should put in the best years of his life at hard labor, as well as his good wife and boys and girls, and after twenty years he should look back over the field of hard labor and realize that all he has to show for it is the bare fact of having been fed and clothed throughout that period. I want to say what I can to help that man that he may be able to get a little more than a living; that he may surround himself and his family with a few of the things that go to make life worth living. I appreciate the fact that not many of such men are at this con-

vention, nor do they get to other conventions. I am going to speak to them through you.

It is generally conceded that the industries of a country are in a great measure dependent one on another. You all know this to be true. It is especially true with the various phases of one industry, dairying. No one branch will succeed unless the other branches succeed. If the farmer who is interested in his own welfare is interested in a great broad way as he should be, then he must be interested also in the welfare of the manufacturer, and he must do his best to enable that manufacturer of dairy products to do his work and do it successfully.

There is many a man in New York as in Michigan who was so selfish by nature that he absolutely stood in his own light and sacrificed the things he wished to attain for himself, by not being a big enough man to appreciate the fact that his success was linked with the success of other men. Take it not only in the dairy business but in other walks of life, you will find that the man who has made a success of his life is the man who is broad enough, generous enough and bright enough to appreciate that before he can succeed the people associated with him must succeed also.

Let me recount for you some of the factors that count for success in dairy manufacturing, dependent on the dairyman:

First, a generous supply of milk or cream within a reasonable radius of the factory. This is true whether the factory is a creamery, a cheese factory, a condensery, or a milk bottling plant. The further away the factory must go to get a supply of milk and cream, the larger is the expense. The man operating a creamery appreciates the fact that if he is to make an unqualified success of that creamery there must be located within a reasonable radius, farms with enough cows to furnish him a generous supply of the raw product.

I am secretary of the National Dairy Union, and am devoting a great deal of time in an effort to bring about the enactment of laws in state and nation that will protect both the dairy farmer and the dairy manufacturer from the unfair, fraudulent competition of imitation dairy products. This is meeting with a great deal of opposition. When the farmer is careless about producing his milk and cream, when he takes it to the factory in such condi-

tion that no living man can make good cheese or good butter out of it, he is absolutely destroying his chances for success in dairying. You may get on selling a low quality dairy product for a fair price for a time, but our American consumers have reached the point where they know a good product and are willing to pay a good price for it. There is now somewhere from seven to eight cents per pound difference between fancy extra butter and the common grades. I have known a great many farmers who said it was nobody's business, it was their product. It is someone's business what sort of milk you produce. If there are six dairymen living on a road, five delivering pure, wholesome milk to a factory, and the other one, who never scalds or sterilizes his utensils or pails, who milks with unclean hands from unclean cows, and then takes his product down to the factory and empties it into the weigh can with the product of those other five dairies; he has lowered the value of the work done by those other five dairymen. As long as a man produces milk and butter on his own farm for himself, he has the right to make it just as unsanitary as he wants to, I suppose. If he is going to mix his milk with mine and I have taken pains to make a good sanitary product, he is wronging me if he mixes that product with mine. I hope that every dairyman here will disseminate that fact as widely as he can.

What are the factors that count for success in the dairy community, depending on the manufacturer? The manufacturer is not doing his whole duty as a man unless he sees to it that the things dependent on him are so handled that he shall do right by himself and others. In the first place, a clean, sanitary factory; second, good workmanship; third, good salesmanship. I would not lay a special charge to the factoryman if he did not always succeed in selling to the best advantage, because if a man never makes a mistake in selling it is due to his good fortune more often than to his good judgment. But, in the matter of workmanship, there is no question but what with the means at hand a man who is operating a factory may assure himself that he may hire men who know how to make that product — whether it is cheese, butter or condensed product — and shall have such workmen in his factory as shall be able to take that raw product and make of it the

best possible manufactured product, worth the most money. Any man can keep his factory clean and sanitary. I know nothing about New York; I never examined the milk pipes in a New York creamery. I have examined the milk pipes in creameries outside of New York, and I have discovered that the farmer is not always at fault. I am not going to try to remove from the farmer's shoulders his fair share of the blame, but there are a great many instances when the man operating the creamery, the man who operates the cheese factory, is directly to blame for much of the product of low value, because he is not cleanly in his methods and does not keep his factory in a clean and sanitary condition.

What are the present day conditions? I shall recount some of the present day conditions and then point out where we may improve them by working together, because there is no use of my tracing the mutual relation between the dairyman and the factory-man unless I succeed in pointing out some way whereby these mutual relations can be made available to those two bodies.

About one-third of the cows in the United States that the farmers are keeping on their farms are actually not paying for the feed they consume, to say nothing about paying for their keeping; another third are about breaking even, and another third are paying a profit. I have said that it is true in Michigan, and I think I have traveled over New York enough so that I can say it is equally true here. I am not talking about breeds at all. One kind of cow takes her feed, digests and assimilates it, and because of her in-born tendency, the law of her nature, she takes that digested food and converts it into flesh. That cow is a beef cow and if any man in the dairy business is keeping that sort of a cow, he had better make beef of her just as soon as he can. Do not think you are bright enough to change the plans of the Almighty and ever get a beef cow to be a profitable dairy animal. She is not to blame, but you are if you keep her.

There is another kind of cow that takes her feed and digests and assimilates it and because of her in-born tendency, she converts this digested food into milk. That cow is a dairy cow. If you have that kind of a cow on your farm, stick to her, because that kind of a cow has for the last several years and will

for many years to come do the farmers of New York more good than any other animal that ever came on the farms of New York. I do not care what her color or breed is; if her temperament is such that it permits her to convert digested food into milk, then she is a dairy cow. To be sure, the beef cow will give some milk when she first freshens, but if you feed this cow generously, as a dairy cow should be fed, instead of giving an increasing flow of milk she will get fleshy. Instead of converting the feed you are giving her into a high-priced dairy product, she is converting it into low-priced beef.

There is still another kind of cow, that takes her feed and digests it but makes neither milk or beef of it. She is of no value to anyone and should be gotten rid of.

I had induced a man in Michigan to keep track of what his cows were doing for him. Some time after we were looking over his herd, and, singling out two cows he said to me, "How much difference do you think there was in the profits of these two cows last year?" I replied that I could not tell how much difference there had been in the profits from the two cows but that I should think the right-hand cow was the better one. He said that the right-hand cow paid him just ten times the profit of the left-hand one. Do you see the force of that statement? Suppose my neighbor had a dairy of cows like the right-hand cow and I had a dairy like the left-hand cow. For ten years I would have to plow my fields and care for my dairy, as well as put in ten years of my life to accomplish what my friend had accomplished in one year. The trouble is that the average dairyman is taking several years to achieve what might result in one year were he to carry on his dairying in the right way.

There are a lot of cows in this as well as every state that are not paying their owners a profit. Why? Because the owner has never given them a fair chance to pay a profit. They have never been fed and cared for in a way to enable them to be profitable.

What can the factoryman do to improve this condition on the farms? Can he afford to do it? If you care to make a permanent success of your business, to do your duty as an American citizen and as a neighbor, the factoryman can afford to do all in his power to improve the conditions of the farmer on his farm. But, you

say, these are farm problems. True, it is the problem of the dairyman, and I am not asking that the dairyman shall be excused from solving his problem; but I want you to understand that it is the problem of the factoryman as well as that of the dairyman. It is someone's duty to try to improve these conditions. Can you afford to do it? Do you care enough about getting an increased amount of better quality milk in your factory, to use your perhaps superior ability in encouraging that man to adopt the method which will enable him to produce and send to your factory more milk? When you begin to interest him in the vital success of his business you can feel sure that he will not only furnish you more milk but he will furnish you a better product.

Let me give you an illustration: Some years ago I helped organize the first cow testing association ever organized in Michigan. We interested the management of a creamery in that locality. They gave freely of their time and money to help in this work, to improve conditions in that neighborhood. What was the result? In five years from that time the factory was getting almost twice as much milk as when the association was started. There was a wonderful change in the community, and not only had the factory increased its amount of milk but it had materially improved the quality of its product. Why? Because the farmers were bringing a better raw material. The factorymen never did the same amount of work anywhere that proved as profitable to them as that done in the spirit of helping their neighbors in the community.

I remember another section where a man who was a butter-maker, simply a hired man, was big enough to want to do something. He started in holding dairy meetings, and each time they met more farmers came in to listen. The first thing we knew one man bought a thoroughbred dairy sire, then another followed suit. Why? Because this one man was a good enough citizen to do a little more than he was hired to do. By helping the men in that locality he helped himself, because he went from that community to another at three times the wages he was getting there, and is now receiving big wages. We talk about missionary work in the benighted countries of the earth, but there is room enough for

missionary work in the state of New York and in the surrounding states at the present time.

In closing I wish to say a few words about another matter of mutual interest to the dairyman and the dairy manufacturer—the sale of oleomargarine for butter. The National Dairy Union is leading out in this matter and asking Congress for legislation that shall prevent to as large a measure as possible the fraudulent sale of imitation dairy products. We are asking for a law which shall prevent the manufacturers of oleomargarine from coloring their product to look like butter. We are asked, “Why does the dairyman color his product?” We color our product to make it look exactly like what it is, and the dealer in oleomargarine colors his product to make it look exactly like what it is not. It is eternally wrong and unjust when that man with his thirteen-cent product puts it in the place of our high-priced product. I am interested in this matter as secretary of the National Dairy Union. I am in it because I believe this thing is vital to honesty, justice, equity and truth, and I ask that not only the factorymen but the dairymen all over this country will stand up as men and demand eternal justice of Congress, and that such laws shall be passed as shall prevent the manufacturers of oleomargarine from placing their product on the market in such a way that it may be disposed of fraudulently to the man who wants to buy our product.

MR. ELWOOD: It has been my pleasure to listen for two years to speeches by Michigan men, and I hope that our good fortune in this respect will continue.

The subject of the next address is, “Caught Between Meddlers and Muddlers,” which will be given by Mr. W. J. Carlin, Attorney for the American Ice Cream Manufacturers’ Association.

CAUGHT BETWEEN MEDDLERS AND MUDDLERS

WALTER J. CARLIN, NEW YORK CITY.

MR. CHAIRMAN AND GENTLEMEN: If you wish an easy life—if you desire to live well and are not troubled by a conscience—join the ever-increasing army of those who decry our present food supply and rave about “pure food.” Under the cloak of bettering the food supply, many self-seeking people are able to live com-

fortably. Their articles and lectures are published and spread broadcast by a press whose working theory seems to be that any attack upon or adverse criticism of a food or a food industry is news, while any statement in defense of the food industry is advertising matter to be paid for at so much per line. The food industries of the country have been and are being harried and hounded, and manufacturers are being annoyed, prosecuted, persecuted and defamed — all in the name of pure food. Morning, noon and night we hear of the “food poisoners,” yet ask the food commissioners of all the states if they find many cases where a manufacturer has knowingly added an injurious substance to a food and they will tell you, “no.” I know this because I have asked them this question. Look over the list of cases brought by the United States Government and you will find that the great majority of them relate to questions in regard to labels.

All this agitation and “regulation” and prosecution costs the manufacturer money — whether he is forced to pay it for advertising to offset some particular false attack on his product — or whether he pays it to attorneys and experts to defend his product and to defeat bad regulations. It cost a Rochester concern about \$3,000 to defend its product in one case; it cost a Syracuse concern about \$1,500 to defend its right to sell its admittedly pure product in Cortland; it cost a whiskey concern half a million to defend its right to use its label, and hundreds of like cases might be cited. Of course the consumer pays — the consumer always pays. The cost of living goes up and up. How long will it be before a little common sense is applied to the control of the food industries? How long before the public will wake up and realize that it has been deceived and misled by those whom it has deemed its protectors?

The subject of food control is many sided, and in this paper we can not do more than discuss a few problems of the milk industry.

When invited to speak to you I could not help looking back over the events of the past few years and considering the present situation, and in my mind the industry was pictured as being caught between the self-appointed self-righteous guardians of the public health and over zealous public officials, who, though elected

largely by farmer's votes, are inclined to heed the clamor of the meddlers without finding out what basis there is for it — without knowing or apparently caring whether the smoke comes from a smudge or a real fire.

In this state we have plenty of meddlers and some muddlers, but in neither class would we place our Department of Agriculture. In the midst of the turmoil the Commissioner, his counsel and assistants have calmly stood for what they knew to be right; have withstood the clamor of the meddlers and the proffered newspaper publicity and though assailed and unjustly criticised — and that sometimes by earnest, conscientious people who believed their acts and charges were justified — they have stood by the milk industry and sought to shield it from unwarranted and malicious attacks. Those of you who know that the legislature last winter refused to pass bills which spelled ruination to both producer and dealer, may think that the legislature also deserves some credit — it does. But my previous remarks were general, and the general record of the legislature is bad — as far as milk legislation is concerned — and even the last legislature had many muddlers who at the instigation of the meddlers opposed the united wisdom of the grange, the producer, the dealer and the Department of Agriculture.

Why all the agitation? What is all the clamor about? What do the meddlers want? Or perhaps better say, — what do they tell the philanthropic but misguided people whose money they are spending, that they want? They say they want pure milk; so do we all. The milk supply of our cities and towns was never in better condition than it is today. No one claims that there is not room for improvement in all dairy lines; there is — there always will be. But that improvement must be gradual; it must be slow to be sure, and slowly but surely the conditions are being improved. Due consideration must be given to the commercial side of the question. We might rapidly approach the ideal if people would pay twenty cents a quart or more for milk; but we must remember that it is just as easy to starve babies as to "poison" them — the latter being the catch phrase of all meddlers and some theorists in advocating their particular ideas of how to attain ideal conditions in the production of milk.

It might be well at this time to read a part of an opinion rendered by a justice of the supreme court of this state in a case where on behalf of a client, we sought and obtained an injunction protecting shipments of pure cream against the most idiotic "regulations" of a certain health official. The Judge said, "We have not, as yet, reached the position where ideal conditions can be had in the regulation of dairies. Of course it is easy enough to picture how things should be. It would be much nicer if the cows were all kept in parlors and had somebody to constantly brush them and take care of them. But that condition has not arisen, as yet, and will not arise, in my opinion. We must exercise a little judgment about these things. The experience of men is that if a dairy is kept in a reasonably clean condition, the product will be pure and wholesome."

Do we need more laws or more stringent laws to protect the consumer? The Department of Agriculture, speaking by its counsel, stated to a legislative committee last winter that the department had authority enough and laws enough — what is needed was an appropriation to pay inspectors so that there could be some assurance that the present laws were being observed. Have we city regulations enough? Yes, enough and to spare — so many in fact to spare that many cities of this state would face a milk famine if they really enforced some of their farcical regulations.

Last winter those really interested in milk and having knowledge of the real conditions fought shoulder to shoulder to defeat certain bills presented to the legislature. We can not here discuss all of these bills nor the reasons and motives that prompted or procured their introduction. I might, however, point out that an interesting sidelight was thrown on the so-called Levy bill which you will remember provided for an all powerful sanitary milk commissioner. The bill was presented by a physician from the East Side of New York who was one of a commission appointed by the Governor to prepare a bill to regulate the milk industry. No qualifications for the office of sanitary milk commissioner were prescribed by the bill. Why? When the Governor was impeached the physician made it known through the press that the Governor had promised to appoint him the sanitary milk commissioner. The bill had been drawn as it was to make his

appointment possible. In other words, the milk industry was to be used to pay a politician for faithful service to another politician — not to the public.

The bills introduced by the New York Milk Committee, though condemned by all the milk interests and the Department of Agriculture, and though refused approval by the Department of Health of New York City and not approved by the Department of Health of the State of New York, were bills which formulated a plan to produce milk under conditions which the authors conceived to be ideal. You are all doubtless familiar with them, and you know that they mean that you turn over your farms and the control of them to several sets of state officials without relieving yourselves of any of the burdens of the present city inspection. They mean, further, 22 cent milk, if the estimates of those who formulated the bills are correct. So it is well to remember that those bills will probably be introduced again this winter.

There is reason, however, for some complaint, not on the part of the consumer, but of the producer, with the existing laws of this state in reference to milk production and the inspection thereof. It is my experience that the producer welcomes sane inspection of his dairy and his product, but feels that when the state has inspected and approved his plant and product, he should be free from further inspections and from the tyranny of incompetent inspectors representing cities and towns.

Here is the result of the muddlers' work. The legislature refuses to give the Agricultural Department sufficient inspectors. Some producers take advantage of this and fail to properly handle their milk and send dirty milk to the cities; the dealer in the city is prosecuted for selling the milk sent him and the dealer blames the producer. Result: the cities proceed to adopt their own rules, send their own inspectors throughout the state, and confusion reigns supreme. If a creamery ships to several cities, it is inspected not only by the state but also by each of the cities to which it ships and there is a constant stream of inspectors, orders and regulations. The dairy receives like attention. In some places dairies are inspected by representatives of five cities. If the regulations of all the cities were alike; if all the inspectors were competent, it would not be so bad — it would be a nuisance,

that's all. But when the regulations vary — as they do — and the inspectors disagree, we have a picture of one of the reasons why many farmers are selling their cows. Each city insists on its own inspectors going to each farm, so you can figure out how much is spent by the taxpayers each year to pay for this duplication of inspection.

There is no argument to present against city inspection of milk so long as the state will not or can not inspect; but it does seem as if one inspection by some competent authority should be sufficient and that cities should recognize inspections made either by other cities or by the state.

Much trouble arises when the inspectors are not competent. Rochester is a large city, yet in a case tried there it appeared that no examination was made of the cream which the city sought to exclude from its boundaries, but that the cream was condemned because of the alleged condition of the dairy farms which produced the milk from which the cream was taken. At the trial it was shown that the dairy farms were all in first class condition and to rebut this the city called its inspectors who had condemned over two hundred (200) farms. One inspector was 22 years of age; had never lived in the country or worked on a dairy farm — had spent ten to fifteen days at a dairy school and then after spending a few days with the Chief Inspector was permitted to go out and condemn farms. I say go out and *condemn* farms — for he condemned about all the farms he saw — 154 out of 161. The second inspector was 21 years old — never lived on a farm or worked in a dairy and after one day's instruction from our 22 year old inspector, whose lack of qualifications has been described, was sent out to inspect farms.

There are, of course, many other types of meddlers and muddlers which we can not discuss here. There is the officious busybody who meddles without hope of compensation; the half-baked theorist; civic clubs, long on good intentions but short on common sense; dairymen who cry for laws to "regulate" more money out of dealers; dealers who cry for legislation to regulate the production of milk and against regulation that touches milk after it is out of the producer's hands; there is the meddler who steps between you and the dealer, who should be your best friend; there

is the meddler who steps between the dealer and you, who should be the dealer's best friend, and so we might go on.

It has always seemed strange to me that the men who have been all their lives in the milk industry are considered too ignorant to know what the law should be in reference to milk and its products, and are the last to be consulted when new laws are proposed. I believe that you should be the first to be consulted, for you know the practical side of the whole question. With your practical knowledge and proper scientific advice—for I would not have you take me as meaning to say that all scientists are meddlers—you can by joining hands with others interested in the production, handling and marketing of milk and its products, eliminate the meddlers and muddlers, or at least curb them to such an extent that your industry may not be "regulated" out of existence, but that you may go on and improve and develop it as it should be improved and developed.

MR. ELWOOD: I am quite sure that many will agree with Mr. Carlin's latter remarks, particularly,—that when anything is proposed in the way of legislation, men who are actually and actively engaged in the dairy business should be counseled with reference to same.

There is another important subject, and I would ask Mr. Hull to kindly explain the meeting in Washington next week.

N. P. HULL: I believe you are all willing to agree with me that as dairy farmers and factorymen you are interested in this matter of oleomargarine. As good citizens, I believe you are interested in square, honest dealing every time. The National Dairy Union has taken the lead in calling a conference at Washington a week from today, December 17, and we have written the different dairy organizations and farmers' organizations all over the country asking them to send delegates. I wrote to President Dollar and your secretary and they answered that they would be glad to have it brought up here. I want to ask you to cooperate with the National Dairy Union and the different dairy organizations from all over the country. We are going to try to agree on some provision for the oleomargarine law, fixing the color that shall appeal to these representative delegates as being fair, honest and just, that we may get a law, the provisions

of which the dairymen in the different states can stand behind fairly and loyally. Then, we want to appear before the Secretary of the Treasury and the Commissioner of Internal Revenue, and put the proposition up to them that we want a square deal. If there is anyone here who thinks that Secretary McVeigh gave the dairy industry a square deal, I should like to have him stand up. The other fellows have put their side of the case before them and done it repeatedly. It is no more than fair that we should present our side of the case. Then, too, we have many friends in Congress. The oleomargarine manufacturers' agents and representatives are there in season and out of season, they are hiring space in the newspapers all over the country, and our friends in Congress are likely to get the idea that they are on the small side and that we are not actually interested in this matter. We want a good, representative gathering, so we can invite our friends in Congress to meet with us and they will feel that the people are interested in this subject.

I feel that you believe this to be a good work and that every member of the New York State Dairymen's Association wants to do his part in having one or more representatives there from this great dairy state of New York. We should have at least two. I should like to have you send more than one if you can. We will probably introduce a bill which will be agreed on then, and it may be necessary to have some hearings. I am sure we shall have your support.

MR. ELWOOD: The meeting will stand adjourned until 10:30 tomorrow morning, when an address will be given by Ex-Governor N. J. Bachelder, of New Hampshire, on "The Importance of Dairying as a Factor in Agriculture."

FIFTH SESSION

THURSDAY, DECEMBER 11, 10:30 A. M.

GEORGE A. SMITH: The first thing this morning will be the election of officers for the ensuing year. Dr. Jordan, of Geneva, is chairman of the Nominating Committee and will make the report.

DR. JORDAN: Our committee had a session last night and made a selection of names to present to you this morning, for your action. In making this selection we endeavored to recognize all the interests that are involved in this association, and we made an effort to recognize not only the practical side but also the professional side, as both sides are involved in our practical dairying.

We present for your action the following names:

President, H. C. Elwood, Buffalo.

Vice-President, W. E. Dana, Avon.

Secretary, W. E. Griffith, Madrid.

Assistant Secretary, H. E. Jones, Syracuse.

Treasurer, R. R. Kirkland, Philadelphia.

Directors: Hon. Calvin J. Huson, Albany; John Y. Gerow, Washingtonville; F. C. Soule, Syracuse; E. G. Dietrich, Syracuse; W. N. Giles, Skaneateles; W. A. Stocking, Jr., Ithaca.

Adopted on motion duly made, seconded and carried.

MR. SMITH: Mr. Elwood, you are elected president.

MR. ELWOOD: Mr. Chairman and Gentlemen: I certainly thank you for the heavy vote and good will expressed. I shall ask Mr. Smith to still preside at this meeting this morning, but I wish to say that in receiving at your hands the honor which I have, and representing the interests which I do, it shall be my aim to help build up a better association, to make it broader and of more advantage to every man in the allied interests. Whatever I can do, my time and limited money will be at the command of this association. No one man ever made any association, and I can not without the unqualified support of every man who has in his heart the good of the vast dairy interests in this state.

MR. SMITH: I am sure that you will give Mr. Elwood your hearty support to make our association a success in the future as it has been in the past.

I have another matter to bring before you at this time in regard to the membership of the association. Of course, in order to succeed our organization must have money, and while the state, through the commissioner of agriculture, furnishes a certain amount of money for speakers, etc., there are a great many other expenses, and the membership helps defray these. For this reason every one who is interested should become annual members, if not life members. I shall read this official notice:

Proposal to amend Section 1 of the by-laws to read as follows:

"Any person who shall pay into the treasury of the association one dollar shall be a member of the association until the next annual meeting, and any person who shall pay into the treasury twenty-five dollars shall be a life member and exempt from any annual payment. Honorary members may be elected by a majority vote at any annual meeting of the association in recognition of services rendered to the dairy interests of the state, and they shall be entitled to all the privileges of membership except voting for officers."

Moved and seconded that the amendment be adopted.

MR. VAN ALSTYNE: I rise in opposition to that part of the proposed amendment that increases the life membership fee to twenty-five dollars. I have no personal feeling in the matter of course, because I am already a life member; but my thought is this, that it will not accrue to the benefit of the society financially or otherwise. The records of the society for the past few years, I think, will show that there have been very few acquisitions of life members at five dollars. That being so, it is fair to presume that there will be fewer still at twenty-five dollars. It is not the money we want so much as an increase of active support, and that means that if we can have an increase of life members, men who are enough interested in the association to put up a sum of money, we will have a better moral support than we will with a few members. My opinion is that the suggested change would reduce the number of members, and that it would be far better to let the matter remain as it

is with a five dollar membership, and then give those life members certain privileges that will make it worth while for them to join. As a matter of fact, I can not see why any man should become a life member of this association, except for philanthropy. It seems to me it is better to put the fee within the reach, not of the wealthy philanthropist, but within the reach of the wide-awake progressive dairyman who would be willing to pay five dollars but can not afford to pay twenty-five dollars to become a member, and after he is a member, give him something to make him feel it is worth while.

MR. ELWOOD: I should like to supplement what Mr. van Alstyne has said. I have been a life member of the association since 1901 or 1902. Each year I have still paid one dollar. I have paid it to get my badge and admission credentials. I am going to ask the board of directors to support me this year in this one matter. I believe every man who has paid one dollar for a membership in this association should receive a card of identification and membership which would entitle him to admission to any meeting of the New York State Dairymen's Association wherever it may be held; permit him to pass through the doors at any time. His membership fee of one dollar, or whatever the annual dues or life membership dues are, should represent something to him. I do not care anything about the dollar, I am glad to contribute it, we need the money and have got to have it; at the same time it would make a man, when he is asked to contribute one dollar for membership, realize that he has something which is of some value.

Motion for the adoption of amendment was voted on and defeated.

MR. VAN ALSTYNE: If it is in order, I should like to move that Mr. Elwood's suggestion be put in form, "That every member who pays his dollar is entitled to and shall have an identification card or ticket admitting him free to all the sessions of the annual meeting of the association wherever they may be held."

VOICE: Do I understand these are to be issued only to life members?

MR. ELWOOD: Life and annual members. Annual members during the current year only — life members are entitled to all the privileges and rights at any time.

Motion duly seconded and carried.

MR. SMITH: Is there anything further before taking up our regular program?

This morning we are to be favored with an address by Ex-Governor N. J. Bachelder of New Hampshire, on "The Importance of Dairying as a Factor in Agriculture." You all know that Governor Bachelder is thoroughly competent to treat this subject and I am sure that you will be interested and helped by what he will say to you.

THE IMPORTANCE OF DAIRYING AS A FACTOR IN AGRICULTURE

N. J. BACHELDER, EAST ANDOVER, NEW HAMPSHIRE.

It is with a feeling of much responsibility that I attempt to address you, by reason of the fact that I was unable to accept an invitation to your meeting one year ago, and my experience in securing speakers for similar occasions leads me to think that acceptance of a followed-up invitation involves more than usual responsibility.

I shall not attempt to discuss the technical or scientific phases of any branch of the subject before an audience composed of the enlightened dairymen of the great Empire State, but will confine myself to a discussion of such general matters relating to this great subject as I trust will be considered pertinent to the occasion.

Agriculture, of which dairying is an important factor, is the oldest of all arts. It was, according to sacred writings, the only occupation of the Patriarchs, the inhabitants of Mesopotamia and Palestine applying themselves to the cultivation of the soil in the most remote antiquity. The Assyrians, the Medes, and the Persians, cultivated the earth. The progress of husbandry in those remote ages was slow and difficult, traditions being the only means by which observations and discoveries were transmitted. The Egyptians, the Greeks, and the Romans claim the honor of the discovery of agriculture, which claim is contested by the Chinese. The contention of the Egyptians that they discovered wheat and invented the plow is disputed by the Greeks, who claim that the arrival of Ceres at Athens as the Goddess of Husbandry marked the beginning of the sowing of wheat and the use of the plow. An-

cient history has much to say about the travels of the Greeks to Egypt, who, on their return to their own country, made use of the plow and began to work the soil. Agriculture was highly respected and honored among the Romans, who, next to religion, regarded it of the most importance, and the first care of the founders of Rome was the creation of twelve Priests, who offered to the gods the first fruits of the soil that they might grant them an abundant crop.

Whatever nation may be entitled to the credit of discovering primitive methods of cultivating the soil and growing crops, all authorities agree that so long as agriculture was fostered and, next to religion, made the chief concern of the rulers, happiness and prosperity prevailed among the people. Those nations which were only engaged in cultivating the soil to make husbandry flourish became powerful and redoubtable; but when agriculture was allowed to decline through paramount interest in warfare by the Romans, fine arts by the Greeks, and in a variety of things by other nations, decline followed. Such results should have an important bearing upon the action of all enlightened nations today. It should stimulate those who are directing public affairs in the state and nation to consider the promotion of agriculture the most important result to be attained, not for the benefit of agriculture alone, but for the benefit of every industry of which agriculture is the basis.

Agriculture is not the most important industry because it represents more capital and gives employment to more people than any other industry, but because it is a productive industry, and the only productive industry. Manufacturing is an important industry, but it produces nothing. The application of labor to raw material changes its form but brings nothing new into existence. Transportation is an important industry, but transportation simply changes the location of things. The ear of corn transported from the West to New England, and the ear of shoes transported from New England to the West, is a ear of corn and a ear of shoes in one place as in the other. Trade produces nothing. It simply changes the ownership of things. Mining takes material from the earth for use in various ways and in various forms, but creates nothing. Agriculture, through the intelligent combination of elements of the

atmosphere and soil, neither of which separately have value in their original form, brings things into being that did not exist before, and forms the basis of activity in manufacturing, transportation and trade, and the basis of prosperity in every other industry. Decline in agriculture causes a decline in every industry and every profession. For this reason the promotion of agriculture is entitled to the foremost consideration of our wisest statesmen and should be the most prominent plank in the platform of any political party.

It may not be out of place to trace the development of agriculture in the United States and briefly note the steps by which this industry has evolved from the occupancy of the land by hostile tribes of Indians to its present advanced condition, considering it under three heads, each constituting a period in its development.

There is no evidence that the red men who occupied this territory practiced agriculture to any appreciable extent. They obtained their supply of food and clothing by hunting and fishing, with an occasional plot of maize or Indian corn, cultivated in the rudest manner by the faithful squaw whose lord and master considered it beneath his dignity to engage in anything so suggestive of labor. These feeble attempts to grow corn and a few herbs were so rare, and the results so meagre, that there is nothing in it worthy of the name of agriculture, and the advent of the white man to the hillsides and valleys marked the beginning of the industry. The pioneers who settled on the farms were a sturdy race of people of great physical endurance and strong mental endowment. They were imbued with a resolute spirit and stimulated to activity by the one desire, to dig from the soil an honest livelihood for themselves and their families. All else was subordinate to this, and they entered on their task with remarkable fortitude and courage. The first settlers of the farms were descendants of families who came to this country for high and noble purposes, and their descendants in turn gradually pushed back into the forests and cleared the land of wood, fenced it, and made farms. The journey to the place selected for the rough cabin home was frequently made over a trail marked only by spotted trees, with the family and all household effects carried on horseback. Perhaps a site had been selected and a rude log cabin previously erected in the wilderness,

which formed the nucleus of the young pioneer's home. Acre after acre of the virgin forest yielded to the sturdy blows of the pioneer's axe, the felled trees were reduced to ashes and the land sowed to rye, the crop from which was to furnish the main sustenance for the family.

The young wife cooked the meals, raised a family of children, kept the cabin in order and the wild animals away, while her husband was vigorously at work clearing the land for a farm. Later, rocks were removed and the vast network of stone walls that girded many of the farms were built. As the children grew up they were able to render much assistance, and a pioneer farmer with half a dozen sturdy boys and girls helping to fell and burn trees, dig rocks and stumps, build walls and fences and seed the land to grass, was no uncommon sight. As the children reached manhood and womanhood they pushed back still further into the forest, cleared farms and built cabins for their homes. In the course of time the cabins gave way to frame buildings as the typical two-story houses with big chimneys in the center were built, barns were erected, and cattle, sheep, hogs and horses kept to eat the fodder which began to grow on the cleared land, and which furnished milk, butter, beef, pork and wool for the food and raiment of the family. Beef and pork were salted in the fall for the year's supply, wool was carded, spun and woven on the farms and made into clothing for the family, the products of the farm yielding the entire supply in both these directions. Little or nothing was bought or sold and there was no desire to do either. A little later the farmer made a trip to market in the fall of each year with a pair of horses in a pung, requiring from one to two weeks' time, carrying to market surplus products from the farm and bringing back such supplies for the winter as his disposition craved and his improved financial condition seemed to allow. As the farms were developed roads began to be improved. Schoolhouses were erected and schools established, churches built and religious services held, attended by about all the people.

The close of the first period of our division was marked by a feeling of great satisfaction and contentment among the people. Their labor was severe both in the house and on the land, but

they were happy. Their wants were few and easily supplied. The soil of the farm was fertile from the accumulations of centuries, and the ashes from burning the heavy growth of wood and timber, yielded abundant crops. Fields of grain were grown with great success, and fruit began to be given attention. The live stock increased in number and value annually. The large houses were filled with large families of rugged, healthy children. The people had but little knowledge of what was transpiring beyond the vision from their own farm, but were prosperous, contented and happy to an extent that it would be difficult to exceed at any period in any part of the world. This was the condition of agriculture at the close of the first period, varying in date in different localities but existing with remarkable uniformity in all sections.

The period of greatest activity among the farmers, and the period of greatest supremacy of agriculture in the affairs of the country, may very properly be termed the period of natural production, occurring during the first half of the nineteenth century. The soil of the fields and pastures had been recently cleared of its forest growth and was filled with plant food. This was true even of the hilltops, where live stock found excellent grazing and where farm buildings, long since gone to decay leaving hardly a trace of existence, sheltered large families of contented people, the soil furnishing a living that met their requirements. As the production of the farm increased and the population multiplied, various industries were established to provide things that increased incomes allowed, and to make things previously made in the home. Dams were built across the streams and the water power utilized in carding, spinning and weaving for surrounding farmers, — work which had been previously done by hand in the farmhouse. Tanneries were built to tan hides taken from the farmers' animals, and shoemakers' shops built to make the boots and shoes for the farmers' families, which had previously been done by the itinerant cobbler. Sawmills were erected to saw the lumber used in building and repairing farm buildings, and grist mills established for grinding the farmers' grain. As the farmers progressed there was a demand for blacksmith shops in which to have oxen and horses shod, clock makers' shops in

which to make and repair clocks and watches, and carriage shops in which to build and repair wagons, all of which were established, affording employment for part of the people a portion of the time. Farming was generally carried on to some extent with these various trades which were worked in the less busy season on the farm. In those days the minister even was expected to till the soil and often was the leading farmer in the township. Stores were opened to supply the people with groceries, rum and tobacco, as their income allowed. In many instances these shops, mills and tanneries were scattered over the township on convenient streams or located near the farmers which they were to serve. Generally the store was located near one or more of these industries and, with the meeting-house and a schoolhouse, comprised the country village of three-quarters of a century ago.

The farms continued to yield abundant crops for many years without any return of fertility, for nature had been filling the storehouse with plant food for centuries, and it scarcely occurred to any one that the soil would not continue to produce bountiful crops for an indefinite period without any restoration of fertility. This great production of surplus crops induced the building of better roads or "turnpikes," as the main roads were called, in order to send such surplus products to a market. These means of communication with the outside world were the beginning of a new era in agriculture. The farmers were stimulated to even greater activity, and with the rude implements of husbandry and great muscular effort, coaxed from the soil abundant crops, which found their way to a distant market. The old time exclusiveness and independence of the town, by which everything needed for food, raiment or shelter was produced within the town limits, gave way to a system of broader proportions, and the little industries we have named, beside the streams and in the centres of population supplying the wants of the people, became extinct. The farmers' boots, clothes and wagons, which were first made on the farm, then in the little neighborhood factories, were made by improved machinery and skilled labor in distant mills and factories. Under the stimulus of the demand for farm products unknown to the pioneer farmers, the pastures were covered with stock and

the fields used for growing crops with no regard for the fertility removed, and in many instances the operation became but little more than the transfer of valuable elements of the soil into cash through the medium of farm products and labor. The money thus received went to pay for expensive living which the new conditions had offered, to improve the farm buildings, fences and stock, or was deposited in the savings bank to be referred to in later years as evidence of the prosperity of agriculture during this period. Whatever use may have been made of the money, it represented a portion of the value of the farm taken from the soil, and labor of the hardest kind in securing it.

Agriculture suffered greatly during this period on account of the vast number of young men and women of good mental endowment and great physical strength,—both qualities being inherited from ancestors of the most exemplary type—that went from the farm homes to develop the West, or to occupy responsible positions in manufacturing cities. These young people possessed the exact qualities needed in their adopted fields of labor, and, while they contributed much to the welfare of the localities to which they went, and in many instances improved their own financial condition by the change, the rural sections suffered by their departure, and many good farms became abandoned thereby. When the aged father and mother, who had made a success of the farm and surrounded their farm home with all the comforts that an intense love for it could suggest and their scanty means provide, passed away, the sons and daughters were established in homes elsewhere, and the farm became abandoned, or passed into the hands of people with only temporary interest in it or in the town in which they had located. The most valuable production of the farms has been the boys and girls sent into the world who have developed into men and women of influence and fame at home and abroad. Their success has been made possible by inherited qualities of heart, mind and body, which were developed through early experiences in farm life and the high moral atmosphere of the Christian farm home. The farms are entitled to the credit of a noble production in this respect.

Another serious loss was experienced by the agricultural interests in the great number of brave boys who went from the farms to

fight for our country in the Civil War. From 1861 to 1865 there was a constant depletion of the farmers' ranks to recruit the ranks of the nation's defenders. This influence reached beyond the bare number that went to the front, for in many cases homes were made desolate, and the interest of those remaining was more with the brave boys that were on the field of battle than on the fields of the farm, where, in a half-hearted way, the aged father and anxious brothers were trying to grow crops. Farm machinery had not come into general use at that time, and the great scarcity of farm help, coupled with the sorrow and despondency in the farmer's family, placed a serious obstacle in the farmer's path, notwithstanding the high prices that artificially prevailed. But little thought was given to sustaining the fertility of the soil, and the crops produced were sent to market with seemingly rich returns.

The present may properly be called the period of readjustment in agriculture. The condition of the industry during the two former periods was in keeping with surrounding conditions and adapted to the necessities of the farmers of the respective periods, as we have already pointed out. The new conditions called for more expensive living, including luxuries in the farmer's home unknown a generation ago, driving horses with style and speed and carriages of the latest and most fashionable design in the place of the farm horse and thoroughbrace wagon, and now the automobile; broadcloth in the place of "homespun," and dainty fabrics of foreign manufacture in place of homemade goods in the wearing apparel of the farmer and his family. Daily papers and the standard magazines are found on the farmer's tables in place of the one publication which brought him his news and politics weekly. The society, formerly limited to the farmer's turn in boarding the district school teacher his proportion of the term measured by the number of scholars sent to school, the semi-annual visits of the seamstress to do the family sewing, with an occasional apple-paring bee, husking, or surprise party, have been superseded by participation in the leading society events of the town and state. The changes have been made necessary by similar changes in the mode of living adopted by people engaged in other industries, which have come into existence in the natural

course of the development of the country and the prosperity of which has allowed. In the readjustment of agriculture to meet existing conditions at home and abroad, the farmer has made available the use of improved machinery, the teachings of advanced agricultural science, intelligent forestry, demands of local markets, the improved means of communication and transportation, and the educational and social influence of the farmers' organization known as the grange.

It may be safely asserted that dairying, in its various aspects and with its auxiliary branches, is the greatest and most important of all agricultural forces in the development of this great industry, and likewise requires the broadest information and keenest conception of details. It forms a great industry itself, requiring knowledge of breeding, feeding, manipulation and fertilization of soil, growing crops, handling a product that is more sensitive to deteriorating conditions than any other product of the farm, and of marketing, in order to make the producer's share of the consumer's dollar as large as possible. These things call into practice as great knowledge of agricultural science as is required in any other system of farming, and nearly as much as all other systems of farming combined.

The matter of breeding involves such knowledge of principles of heredity as to tax the mental capacity of the successful breeder almost to the limit. He must not only know the lines of breeding that have produced great performers in the breed he has selected, but must be familiar with the probable results from uniting the blood of different animals representing strains of that breed. As he pictures in his mind the animal he hopes to produce by his breeding plan, several generations in the future, there comes to him a feeling of great responsibility in the creation of animal objects. He must in the first instance determine whether his financial and other conditions warrant engaging in breeding pure-bred animals, but under no circumstances will he be justified in using other than a pure-bred sire. The expenditure of money by persons of wealth, and the efforts of shrewd experts in breeding, have combined the good qualities of individual animals of the various dairy breeds in such a way as to make available to the practical dairyman superior sires to head his herd at prices that make them

easily within his reach. I presume I shall not receive censure if I assert that there is a worthy field for dairymen in the selection of high grade cows as the basis of a herd upon which to use pure-bred sires of approved breeding in the development of profitable producers. An ideal not higher than an average of 8,000 pounds of milk, or 300 pounds of butterfat, may be reached in this way as profitably as with pure-bred animals, with the sale of stock an important factor as is necessary in handling a pure-bred herd. The determination of this question and others closely allied to it, and intelligent action under it, calls for greater ability and keener discernment of all conditions that may prevail, than is required in any system of animal breeding. The most serious detriment to profitable dairying is feeding the dairy animals, the product of which does not pay the cost of feed and care. An important factor in changing this is the cow testing association, which has made its appearance within a few years. By the operation of this inexpensive organization, unprofitable animals may be eliminated from the herd when it could not be done without such cooperative effort to get knowledge of the performance of individual cows. It is not unusual for 25 per cent. of the animals tested in this way to be eliminated at the end of the first year and their places filled by paying producers.

In the matter of feeding the dairyman must exercise the greatest knowledge of the subject, and discretion, on account of the functions required of the food. In feeding animals for beef, mutton or pork production, the one element to be considered is healthful accumulation of flesh, but in the case of the dairy animal, there is not only a healthful condition to be maintained, but also the effect on that wonderful operation of milk secretion. The difference between feeding a beef animal and a highly bred dairy animal has been compared with the difference between feeding a draft horse and a high bred race horse. This has reference to the grain rather than the fodder ration. It is generally conceded that alfalfa, where it can be successfully grown, clover hay, and ensilage, constitute the ideal fodder ration for dairy animals, but in the matter of grain there is the broadest field for selection. The proper grain ration to balance well with the fodder, and the cost of the protein contained therein, are the domi-

nant factors for consideration in connection with the effect on the health and milk secreting functions of the animal, and the manurial value voided in both solids and liquids. The quantity to feed each animal also enters into the problem. The most economical combination may vary from year to year, on account of variation in cost, and the physical condition of certain animals in the herd may enable them to digest and assimilate larger quantities of highly concentrated grains than other animals of equal weight. Supplementing pasture feed with a grain ration, except in the flush of pasture feed, is generally regarded as economical, and the grain to make the right combination with the grass feed offers another question for solution that does not so prominently enter into other live stock feeding. These are some of the matters that must be considered by the successful dairyman, which call for the greatest intelligence in the feeding of the dairy herd.

With rare exceptions the dairyman grows the fodder ration for his herd, and a portion of the grain. This branch of the business requires as good knowledge of manipulation and fertilization of soil as is required of the cereal producer, whose entire business is growing crops for market. Knowledge of the importance of conservation of moisture, and making dormant fertility active, through intensive cultivation of the soil, must be a part of the dairyman's mental equipment, not only in producing fodder crops for his herd, but other crops where a rotation also involves growing one or more cash crops. The economical handling and wise application of stable manure, of which the dairyman has a more valuable supply than is afforded by any other system of farming, is a matter of great importance and one in which serious losses may occur. Its mechanical effect upon the soil, as well as its fertility content, must be understood, and it should be applied in such quantities as will eliminate, so far as possible, the purchase of expensive nitrogenous manures, supplementing it with phosphoric acid and potash in their most economical form, and applied in such proportions with the stable manure as the condition of the soil and needs of the crop require. If alfalfa, clover, or oats and peas, are included in the forage crops grown, the dairyman will ascertain if lime is needed in the soil, for these crops can not be grown to perfection on acid soils. The corn crop is a crop of

great importance on dairy farms and can be sold to the herd, either in the form of ensilage or cured, at a profit over the cost of production, and to greater advantage to the grower than is enjoyed by the corn producer who grows for the market. Corn growing associations in various sections of the east are stimulating interest in the production of this cereal, and should result in causing it to be more extensively grown by dairymen. There is less excuse for sending money to the prairie states for corn than for other parts of the dairy herd's ration that are higher in fertilizing value. It will not require much investigation to establish the fact that a larger proportion of the feed for the dairy herd can be economically grown on the dairy farm by proper attention to cultivation and fertilization of the soil.

No product of the farm is more susceptible to deleterious conditions than milk, and none more perishable under the influence of those conditions, not excepting the most perishable of fruits. The damage caused by lack of care during milking is not yet generally appreciated, and the movement in some localities to base the selling price on the bacterial content, paying the highest for the lowest bacterial count, has more to commend it than the ordinary practice of paying a lower price for larger bacterial count; in other words, rewarding the producer of a superior article, rather than punishing the producer of an inferior article. The skill exercised during the milking process, and the attention given to the care of milk during the few minutes intervening before it is cooled to the requisite temperature, are as important as any operation connected with dairying and require a more delicate sense of right and wrong practice, than is required in any other system of farming. The dairyman's responsibility in the care of milk does not cease from the time it leaves the udder until delivered to the creamery, the milk contractor, or the consumer, and if that responsibility has been shirked, no manipulation of the product will make amends. The familiar expression of "unscrambling eggs" is a fit comparison with an attempt to eliminate from milk bacteria that do not rightfully belong there. The fact that milk is sometimes subjected to improper handling after reaching the consumer's possession, and also that it is sometimes surrounded by improper conditions after leaving the producer and before reach-

ing the consumer, is not excuse for neglecting every precaution for preservation when it is in the condition most susceptible to injury. Many of the requirements for the production of certified milk are beginning to be met by the producer of milk for the general market, and will be more fully met when the consumers are ready to pay a just price for milk produced under such conditions. The manufacture of milk into butter, cheese, or the condensed product, is outside the dairyman's province, except on occasional farms, and beyond the scope of this paper. The dairymen who milk, handle and deliver their product as it should be milked, handled and delivered, are doing that which, in exacting requirements, is not exceeded or approached in any system of farming involving the keeping of any kind of live stock.

There are many problems in the disposition of dairy products still to be solved. The dairyman whose business is not extensive and who is located in the vicinity of a good local market delivering milk, cream or butter direct to consumers, escapes the various transportation and dealers' charges, which by reason of existing methods of distribution, have become an enormous tax levied between the producer and consumer. The recent investigation in New York City, showing that of each dollar that consumers paid for food products, but thirty-one cents was paid for the product on arrival at the city limits, is an awful commentary on distribution methods. This is in part attributable to the exactions of consumers in the delivery of their purchases. In the matter of milk there is less intermediary expense than in some other products, and yet the fact that the producers receive less than 50 per cent. of what the consumers pay for milk, within one hundred and fifty miles of the farm, with practically no loss from deterioration, is one of the obstacles to more profitable dairying that still remains to be overcome. By improved means of transportation, the maximum distance limit from which supplies are drawn is constantly extended, to the detriment of near-by producers. The vast amount of capital required for cooperation among dairymen in the distribution of their milk in a distant market, has been the great obstacle to its successful operation, and for this reason the problem remains unsolved. The manufacture and sale of butter and cheese, except in cooperative factories, is beyond the control of the pro-

ducers, but the product comes in competition with that from distant sections of the country, and even outside countries, where dairy feed and labor cost less than here. That the creameries and cheese factories of New England and New York have been able to return to the milk producers supplying them so large a share of their proceeds from sales, is evidence of good management and economical methods, and is in striking contrast with the proportion received from the milk that finds its way to the same consumers table. The selling price of milk at the place of production is about the same, whether sold to be consumed as milk or to be manufactured into butter, and the difference in the cost of transportation of a car of milk and a car of butter is not great; yet the car of milk delivered to consumers sells for about 50 per cent. more advance than the car of butter. There is food for reflection in this statement of fact. Inasmuch as in many localities the price of milk for delivery at the car is determined by the price paid for milk delivered at a creamery, the dairymen patronizing the former are as much interested in the enforcement of laws against the sale of any substitute for butter in a deceptive color as the buttermakers themselves. The retention of laws protecting the public as well as the dairymen from the use of any substitute masquerading in the distinctive color of butter should be demanded of our law makers. There are reasons for believing that unusual vigilance and activity along this line is required at the present time, and is necessary if dairying is to retain its present prominent position as a factor in agriculture. The sale of substitutes for butter without counterfeiting should have as little restriction as possible, but their sale in the livery of the dairyman's product should be subject to severe penalties.

It may not be out of place to call attention to the fact that every investigation recently made into the cause of the present high cost of living has shown that the farmers are not responsible for it. If the retail price of their products seems high to the consumers, it can be partially traced to expensive methods of distribution which are not confined to farmers' products alone. If the price of his products has been more prominently in the public eye than the price of other products, and of labor, it is for the reason that the products of the soil in some form, and to some extent, are neces-

sary to maintain an existence. If production in this country has not kept pace with the increase in population, and if methods of distributing are more expensive for the convenience of consumers, there is no justice in blaming the producers who are annually increasing the amount of food products to the full extent that the profits warrant.

A vast acreage in this country is available for producing food crops by those who would censure the farmers for not producing more, and yet abandoned farms of a type not adapted to present day methods are no more numerous than abandoned mill sites in use under earlier methods of manufacture. The recent improvement in means of transportation and communication in rural sections, and the greater efforts now being made to furnish scientific information of a practical nature to farmers — movements that had been too long delayed — will have much to do with increasing the volume of food products, but no movement should have our endorsement that aims directly at reducing the price of such products at the farm without corresponding reduction in the price of the things the farmer uses.

There are many other reasons that might be given why dairying is an important factor in agriculture, based on the ability and information which characterizes every successful dairyman.

We have not mentioned the machinery available for use on the dairy farm and in the various operations incident to producing and handling milk, marvelous in its perfection and exacting in the skill required to manipulate it to advantage.

We have not mentioned the soil drainage and irrigation, as important and necessary on dairy farms as in any other system of farming.

We have not mentioned bovine tuberculosis, which is under the dairyman's control by proper housing, feeding and handling his herd in connection with the tuberculin test, if he has the knowledge and puts it in practice.

We have not mentioned the recent introduction of cement in improving the sanitary conditions of stables, dairy houses and storage of feed for the dairy herd, an operation not at all difficult but one that requires the exercise of judgment in making its use available.

We might mention many other things that the dairyman must

know and do, in order to be successful, the sum of which places dairying at the head of the list in the catalog of farm departments, and renders it the most important factor in agriculture. As further evidence of the veracity of this statement, we refer to the general increase in soil fertility, improved condition of farm buildings and the means of enjoyment for the farmer and his family, found on dairy farms. These are due, not to any natural advantage in dairying, but to the mental grasp on the many details of the great business which the successful dairyman has been required to exercise that has resulted in his mental development in many directions. With this as his most valuable asset, there is no doubt of the continued dominance of dairying, whatever obstacles may be thrown in its way by grasping monopolies, or the subterfuges of those who would foister on the public a counterfeit of the product of that most interesting and docile of all animals, the dairy cow.

MR. SMITH: Mr. van Alstyne will make a few remarks.

MR. VAN ALSTYNE: I have no desire to detain this meeting, but it does seem as if so valuable a paper, so comprehensive a paper as we have just listened to from Governor Bachelder, ought not to pass without at least a comment. This thing was impressed on my own mind as a whole as he read it — the great amount of skill and knowledge, correct knowledge, as well as detail, that must enter into our dairy business today. As a good many of you know, I am a fruit grower as well as a dairyman, and I have heard the remark made and wondered if it were not true, that it required a greater amount of skill for a man to be a successful fruit grower than a dairyman. Dealing as he must with soil; with varieties adapted to certain soils and certain climate; with hoard of insects and diseases he must kill and combat, many times, and with new pests coming continually; with the market and the great amount of labor at short periods, it would seem at first glance that it did require a greater amount of skill. As I listened to Mr. Bachelder as he outlined the various things that must enter into successful dairying, from the breeding of the animal; the manipulation of her products becoming so intricate; the various crops that are necessary for her economical maintenance; the skill and knowledge of soils and fertilizers; and the value of sufficient food to feed

her, I thought to myself there is no comparison, the dairyman has very much more — not only the harder task but the task that requires a greater amount of brain power. After all, that is the thing that develops a man. It is not the exercise of the muscles. In the old days when the cow was simply brought out and milked and her product carried away, it did not require very much but muscle. A dairyman, more to the point, did not raise to a very high level; but today with the exercise of more brain than muscle power, dairying will do that thing that has been done notably in the state of New Hampshire and other New England states, bring out a class of men that have been and are the noblest product of any state or community.

There are many other things brought out in detail in this paper that may well be worthy of our consideration. Did you ever realize the fact that the farmer who whitewashes his stable and puts in a cement floor and has that stable attractive, has an exterior that is pleasing to the eye, has an increased self-respect for his business. I say to you again, then, as I said in substance the other evening, that after all the vital thing is not more quarts of milk or better milk, although they are very essential and very important, but as these things minister to make us better men and better citizens. Governor Bachelder, I am glad that you emphasized that point in your excellent address.

MR. SMITH: That concludes the program this morning. This afternoon, at 2 o'clock, we are to have a talk by Professor Hugh Van Pelt of Waterloo, Iowa, on "Van Pelt's Cow Demonstration." He will give you some valuable suggestions.

If there is nothing further to come before the meeting we will stand adjourned until 2 o'clock.

SIXTH SESSION

THURSDAY, Dec. 11, 2:00 P. M.

MR. ELWOOD: I have the pleasure of introducing Captain Ivan H. Wise, President of the Syracuse Chamber of Commerce.

CAPTAIN WISE: GENTLEMEN AND FELLOW FARMERS: I can say that with a great deal of truth because I am a farmer myself. We are very glad to have you with us. We think that this is a creditable organization; we believe that it is a credit not only to this organization and the city, but to the great industry of dairy farming throughout the United States. We have the facilities here to house you and your convention. This is the most centrally located point in New York State where there is a focal point of the transportation lines. We are here to extend to you a cordial invitation to make this your meeting place next year, and anything we can do to give you the facilities, I have just assured your President, the courtesies and the entire machinery of the Chamber of Commerce is at your disposal. I am sure that the way this thing is growing it is not only going to be one of the best things held in New York State, but from looking at the exhibition in the room above I am satisfied this is going to be one of the best conventions in the United States.

We want you to come to Syracuse.

MR. ELWOOD: The Mayor's representative told us that they had no key, but thanks to the chairman of his efficient entertainment committee none of us have any reason to complain of the treatment we have received. Mr. Woolworth wishes to say a few words.

MR. NEWELL B. WOOLWORTH: (Of Syracuse Chamber of Commerce.) MR. PRESIDENT AND GENTLEMEN: I do not know that I can call you fellow farmers but I am sure I can call you fellow citizens. We are assembled here in Syracuse within a few miles of where stood a council house of the first American Democracy, the League of the Six Nations. This council house was located some four or five miles south of here. Why? Because it was only a short carry to the tributaries of the Susquehanna, the Chesapeake and the ocean; to the east, it was only a few miles

to the lake where they turned east with their canoes to the Mohawk and the Hudson and gained the sea; or they continued north and then the whole basin of the Great Lakes was open to them. Today Syracuse stands in the most strategic position for access of any city in the whole east of this continent.

We have in the last week been engaged in reorganizing our Chamber of Commerce. We have here the accomodation. Two weeks ago we took care of over seven thousand school teachers from all over the state. Most of them were women. There was not a report made of discourtesy, of theft, or any complaint from all those seven thousand women who made Syracuse their home for several days. We provided over thirty meeting places for them and accommodations back and forth. So we have here accommodations both in regard to housing comfortably and at any fixed rate one wants to pay. We have the meeting places. We have what is, I think, a spirit of hospitality and the sign on our City Hall "Syracuse Bids You Welcome" carries, I assure you, the sincerity that every welcome should carry.

Again, on behalf of the Syracuse Chamber of Commence we bid you welcome to Syracuse and assure you of our support in every way to advance your interests.

MR. ELWOOD: I have asked Mr. George Smith to preside at this meeting this afternoon. You all know him and he needs no introduction.

MR. SMITH: The first business of the meeting this afternoon will be the report of the Committee on Resolutions.

MR. GILES: Your Committee on Resolutions have prepared the following:

1. WHEREAS, The legislature of this state has enacted a law commonly known as the one day of rest law, and

WHEREAS, The milk industry is seriously and adversely affected by such law by reason of the fact that milk and its products require the daily attention of skilled employees whose places can not be filled for one day each week by substitutes, therefore,

Resolved, That the New York State Dairymen's Association do petition the legislature to amend the aforesaid act and to exempt from its provisions dairies, creameries, milk shipping

stations, butter factories, cheese factories, and ice cream manufacturing plants and other plants where fluid milk and cream or their products are handled, and be it further

Resolved, That the Legislative Committee be instructed to bring this resolution to the attention of the legislature and urge upon it an amendment which will be in accordance with this resolution.

Adopted on motion duly made, seconded and carried.

Before I read this resolution I want to make a statement of a fact with which perhaps you are all familiar. A bill known as the employes' compensation law, which it will not be necessary to read or report at this time, is on the calendar of both houses of the legislature for passage tomorrow under an emergency message from the Governor. I endeavored yesterday to learn whether an effort to amend that law exempting farmers had met with any success, and there seems to be a doubt. The original bill as drawn makes farming an extra hazardous business and makes the farmer amenable under this law. We have prepared this resolution:

2. WHEREAS, There is now pending in the legislature a bill known as the "Employes Compensation Law" the provisions of which include farming as an extra hazardous occupation, and including farm laborers, we, the members of the New York State Dairymen's Association vigorously oppose this bill, or ask that it be amended to exempt farms and farm laborers.

Resolved, That our secretary immediately wire Governor Glynn, Speaker Smith and Senator Wagner of this protest.

Adopted on motion duly made, seconded and carried.

3. WHEREAS, The New York State Dairymen's Association is an organization primarily representing the dairy farmers of the State of New York, and

WHEREAS, It is becoming more clearly recognized that the improvement of milk supplies is preeminently an economic one, and

WHEREAS, The dairy farmers of the state feel that they as the ones most vitally interested in and having first hand knowledge of the economic factors involved in clean milk production, should be consulted in establishing milk standards and laws, and

WHEREAS, The dairy farmers of the state have been and are now willing to produce milk of any desired grade whenever the economic factors involved are given proper recognition, and

WHEREAS, The dairy farmers recognize the invaluable aid that has been given them in solving their problems by the disinterested labor of sanitarians and members of the medical profession who have contributed so freely of their time and labor in order to secure a safe milk for the citizens of the state, therefore,

Resolved, That we believe the consuming public is entitled to a clean, pure and safe milk supply.

Resolved, That we believe in a sane, practical and uniform milk inspection.

Resolved, That we approve of the grading of milk and cream on the basis of food value, cleanliness and safety combined with proper publicity.

Resolved, That proper milk standards can only be established and equitable laws drafted, enacted and enforced, by the cooperation of the sanitarians, consumers, producers and distributors.

Resolved, That we ask the legislature of the State of New York to appoint a committee representative of all the interests vitally concerned in the question of a safe milk supply, to investigate the whole question of milk production, distribution and inspection and draft a law to be submitted to the legislature for enactment.

Resolved, That this association and the consumers of milk can not adequately express the appreciation of the disinterested labor and effort of the various scientific men who have given so much of their valuable time and thought to the solving of milk problems.

Adopted on motion duly made, seconded and carried.

4. *Resolved*, That the president of this association is hereby directed to appoint a committee of two to attend the conference in Washington on December 17 of those interested in oleomargarine legislation.

Adopted on motion duly made, seconded and carried.

5. WHEREAS, There are radical differences even between authorities as to the necessities required to constitute pure and safe milk, and

WHEREAS, There is to be held an International Milk Congress at Zurich in June next, and

WHEREAS, It is necessary that we may learn of the very best and latest scientific knowledge on this subject, therefore

Resolved, That this association appoint Dr. Robert Breed of the State Experiment Station as delegate of this association to said International Dairy Congress.

Adopted on motion duly made, seconded and carried.

6. WHEREAS, It does not seem proper that this association should adjourn without expressing its approval of the administration of the Commissioner of Agriculture, Calvin J. Huson, a department that is of such vital importance not only to the agricultural interests of the state, but to the consumers of agricultural products, and

WHEREAS, The efforts of Governor Glynn have resulted in the payment to those dairymen who have had their cattle killed by the department of agriculture when condemned for tuberculosis, of the money justly due them, therefore

Resolved, That we do approve of the administration of the department of agriculture by Commissioner Huson and thank Governor Glynn for securing the payment to the dairy farmers of this state the money due for cattle killed as the result of their condemnation by the state as being tuberculous.

Adopted on motion duly made, seconded and carried.

PRESIDENT ELWOOD: Mr. Chairman, I would like to offer the following:

To His Excellency, the Governor, MARTIN H. GLYNN, Albany, N. Y.:

WHEREAS, The New York State Dairymen's Association are appreciative of the splendid service performed by Commissioner Calvin J. Huson, we respectfully urge that he be reappointed Commissioner of Agriculture on the expiration of his present term of office, believing that the agricultural interests will be the better served thereby.

I move its adoption and that the Secretary be instructed to wire the same to Governor Glynn.

Motion duly seconded and adopted.

MR. SMITH: Mr. Geo. E. Hogue will report for the auditing committee.

MR. HOGUE: We find the Treasurer reports as follows:

Balance on hand from 1912 meeting.....	\$795 41
Receipts for 1913 meeting thus far collected.....	1,735 00
	<hr/>
	\$2,530 41
Disbursements	1,235 02
	<hr/>
Balance on hand in bank.....	\$1,295 39
	<hr/> <hr/>

Your committee finds that the Secretary's report shows:

Receipts for booths (which includes \$75 not yet collected)	\$1,375 00
From sale of calf from E. H. Dollar.....	260 00
Receipts from the city (of which \$425 is still uncollected)	600 00
	<hr/>
Total receipts	\$2,235 00
Total uncollected	500 00
	<hr/>
Total cash receipts.....	\$1,735 00
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Which exactly agrees with Treasurer's report.

We also find that the Secretary reports for his office work an expense of.....	\$301 47
For unpaid bills that are not fully determined....	121 40
	<hr/>
Total	\$422 87
	<hr/> <hr/>

Report was adopted on motion duly made and seconded.

MR. SMITH: I might say if any of you do not understand about the \$260, that last year Mr. Dollar presented a calf to the association. After the meeting was over this calf was not claimed, so Mr. Dollar kept it and a short time ago he sold it and turned the money over to the association.

If there is nothing further, we will take up the regular program of the afternoon. This afternoon we are to have a talk by Professor Hugh G. Pelt on "Van Pelt's Cow Demonstration." I think there is no one here but who knows by reputation Professor Van Pelt.

VAN PELT'S COW DEMONSTRATION

PROFESSOR HUGH G. VAN PELT, WATERLOO, IOWA.

I am very glad to have the opportunity of speaking before you this afternoon. I remember very favorably my trip here to your State Dairy Association last year. I remember the opportunity I had of speaking to you a year ago pertaining to the feeding of dairy cows. I am glad to say to you that to one from a distance it is possible for me to note great improvement in what you have heard here at the State Dairy Association over and above what you had last year. It certainly does those of us who are interested in the dairy industry much good to go from state to state year after year and find that improvement is being made. It is indeed a pleasure to recognize the improvement that is being made in every phase of the dairy industry in all parts of the country.

The future of any dairy herd depends on the manner in which the foundation herd is selected and how they and their offspring are developed. In fact the subject is so broad that volumes can be and have been written on it. Success or failure, mere recognition of fame, depend on a clear, keen knowledge and application of proper judgment with which the fundamental rules of selecting and developing the herd are followed. This is therefore a subject of as vital interest to the one who has been breeding cattle for many years as to the new beginner who is just entering the ranks of dairying and on the verge of purchasing his first cows.

Lack of advancement or even a decline in the value of a herd, is in a large percentage of cases due to the fact that the breeder fails to apply proper thought and judgment in selecting from his herd animals for disposition and those to keep for the upbuilding of his herd.

No breeder of live stock ever built a really great herd of cattle, who year after year sold his best cattle. Far more promising is the future of the one who makes mistakes in securing his foundation herd and ever afterward selects and retains the very best he breeds, than he who buys well in the beginning but perpetuates his herd with individuals, the chief virtues of which is that they have not appealed to buyers.

The proper selection of the females for a herd depends on knowing the dairy cow. There are good cows and poor cows all over this country. Which are the good cows and which the poor ones, is a problem that must be solved. In our state we are making strenuous efforts to determine the good cows and eliminate the poor ones.

In my experience I have never seen a herd but that some cows in it were profitable and some were unprofitable, simply eating up a portion of the profits that the good cows were making. In testing associations which we have organized in Iowa, we find many peculiar instances. Often times in one and the same herd will be found two cows standing side by side, one of which, when her record has been kept for a year, will have produced 100 pounds of butter, while the other, kept under identically the same conditions, being fed by the same feeder, milked by the same milker, given the same foods in amounts and quality, will have produced according to the scales and Babcock test 400 pounds of butter during the same period of time.

Let us take for granted that it costs \$29 a year to feed the first cow and that her butter sells for 30 cents a pound, yielding a gross income for her owner of \$30. Figure the net profit and it is not difficult to ascertain that this cow has made for her owner \$1 net profit, after allowing the skim-milk, calf and fertilizing ingredients of the offal to pay for the labor expended on her. In other words, the dairyman or farmer has contented himself with milking a cow over 700 times for a net profit of \$1.

We, as farmers and dairymen, are prone to complain about the drudgery on the dairy farm and about the scarcity and high price of farm labor. Still the proprietor of a farm, one of the greatest factories of the United States, is willing to sit under a cow night and morning over 700 times a year and milk her for the meagre profit of \$1.

Consider her stable companion, however, that has made 400 pounds of butter which when sold at 30 cents per pound will return \$120 — she may be fed \$60 worth of feed and still return a net profit of \$60 for her owner. It means that this cow, making 60 times as much profit as the other cow is worth at least a whole herd, numbering 60, of the less productive type.

This is the condition that faces the American farmer and dairyman today. He, and he alone, can by intelligent methods so select and care for his cows as to make them all return him a large percentage of profit.

On the other hand, we realize that your farms are your farms and your cows are your cows, and you are at liberty to do as you like. You can milk one cow for a year and make a net profit of \$60 or you can milk 60 cows for the same period of time in order to make the same amount of profit. In other words, you can milk one cow one year to make a profit of \$60 or you can milk the same kind of an old cow 60 years in order to make the same \$60 of profit.

However, we know the American farmer well enough to be certain that he will not knowingly milk a whole herd of cows to make the profit which one cow should make, and those who are willing to take time to weigh and test each individual cow's milk to determine the relative merits of his cows can readily sort out and retain only the profitable cows for their future herds.

As farmers we should realize that in reality the farmer is a manufacturer. Our farms are the greatest manufacturing plants in the world and every animal that we have on them, no matter what else it may be, is a machine placed there for the purpose of manufacturing finished products out of the raw materials, the grains and grasses grown in the fields. And I say to you that the farmers of the United States will never reach their highest plane of dignity until they realize their position in commercialism as manufacturers.

It is a well known fact that greater percentage of profit can be made from raw materials by using efficient machines, those that are durable and capacious, than machines that are out of date and wasteful. When we will accept the highest type of present day machines for the manufacture of milk and butterfat and give them the proper care and treatment which is due them, we will have solved the problem of great and economic production. We shall thereby gain in both quantity and quality of production and by so doing will have demonstrated that our farms are the greatest factories on earth.

You say to me if we all had good cows there would be no market for the butter. However, I am confident in our lives we

will never see the time when there will not be a demand for all the good milk and butter that can be produced.

Thirty-five years ago there were being milked in the United States 11,000,000 cows. Today there are 22,000,000. During this thirty-five years our population has doubled and in the next thirty-five years we can expect our population to double again. In case it does, one of two things will be necessary if the people of this country are to use dairy products to the same extent per capita as they are now. It will be necessary either to milk twice the number of cows or to double the average production. Milking twice as many cows, or 44,000,000, would add greatly to the drudgery, for it will take more labor and much more feed. All things considered, the best solution is to milk the same number of cows, use better methods in caring for our herds, select and retain only profitable individuals and use good sires in building up these herds.

It will not be a difficult matter to induce your cows to yield double their present amount of butterfat. After that has been done there will still be the possibility of doubling the production again.

If you could realize the wonderful possibilities on the farm today for those who will solve just these kind of problems you would be surprised at the wonderful results that can be accomplished.

I believe that one-third of the 22,000,000 cows being milked in the United States are not any more than paying for their feed, another third are being milked at an absolute loss, which means that all of the profit that is being made from dairying is derived from one-third of the cows, while the remaining cows that are now being milked are eating up a portion of the profits that this small percentage of individuals are making.

Were we to allow ten minutes for milking and feeding each of the unprofitable cows that are now being milked in the United States 700 times a year, then divide this time up among the farmers in the United States, we would find that on the average farm some man wastes annually 27.2 ten-hour days each year. This is practically a month and represents the farmer's vacation, which he does not get. He has chosen to milk during his vacation

period while the business man goes abroad. These are merely facts and all the man who milks cows needs to do to prove them is to join a testing association or begin regularly to weigh and test the milk of his cows. The only reason we are milking unprofitable cows today is because we have not realized the value of the milk scales and Babcock test, or, in other words, we have not made a study of the individual cow.

In fact, there are many most excellent lessons that are to be learned about cows, their selection, their feed, care, etc., that can be learned only from the cows themselves, and, as much as I appreciate those lessons which I have learned out of dairy papers, books and in school, the greatest lessons I have ever learned have been taught me by the cow herself.

In addition to the use of the Babcock test and scales there are many points to be considered in selecting and judging dairy cattle, and, using this cow as an illustration, I shall try and make plain the essential points to be observed in selecting dairy cows. If during my talk there are any questions you would wish to ask, I shall be glad to answer them.

There are five essential points that must be present in the makeup of any cow if she be highly productive, and the absence of any one of these points is proof that the cow is either not productive or that she will not remain productive over a long period of time. These points may be enumerated as constitution, capacity, nervous temperament or disposition to work, blood circulation and the ability to convert feed nutrients into milk and butterfat. Considering these, one at a time, it is always well to begin at the head.

Constitution is indicated, first by large nostrils. Nothing purifies the blood except oxygen and no oxygen ever reaches the lungs and comes in contact with the blood except through the air which the animal breathes. If the nostrils are small the amount of air is limited or the cow must breathe twice as rapidly as if her nostrils were larger. The respiration of cows is practically the same. Therefore, cows with small nostrils do not take into their lungs the same amount of fresh air and oxygen that cows with larger nostrils do. Passing back, it is desirable that the cow be deep from the top of the shoulder to the floor of the chest, well

sprung in the front ribs and deep in the heart girth. A cow that is shallow in the chest and heart girth and slab sided in the front ribs is considered lacking in constitution. It should be remembered that the dairy cow is an extremely hard worked animal. A cow that will produce in one year 18,000 pounds or even 10,000 pounds of milk has accomplished more in providing food for mankind than three or four steers working the same length of time would have done. Because of the fact that she works as persistently as she does and that she is stabled six or eight months out of each year in a barn which is too often cold, dark, damp and poorly ventilated, where she is subjected to disease germs of tuberculosis, cow pneumonia, garget, contagious abortion and other diseases, it is absolutely necessary that all indications of rugged constitution be well developed.

In my travels from coast to coast and from Canada to the Gulf, it is very seldom that more than one or two very small windows are to be seen even in great, magnificent farm barns that have been built at great expense. It should be realized that whenever barns are built and boarded up tight without windows or fresh air ducts, the light, sunshine and fresh air, which cost nothing and are absolutely essential to maintain the cow's health and make it possible for her to do her best work, are shut out.

The next point for consideration is capacity. Beginning again at the head, you will notice on this cow the extremely large mouth. Any animal with a large mouth is a good feeder. I have never seen an animal with a small mouth that was a good feeder. Just as truly as it is necessary for a cow to consume large amounts of food in order to prove herself profitable, it is necessary that her mouth be well distended and large. Passing back, the body should be long from the shoulders to the hip bone. The ribs should be well sprung and deep, giving dimensions for a large capacity or storage room, namely, length, breadth and depth. Size of barrel is an indication of the amount of feed that a cow can consume at one time, but with this consideration should also be considered the degree of thoroughness with which the cow digests and assimilates her food. Any portion of the food which passes off undigested is wasted, and worse than wasted because it taxes the cow's digestive apparatus without producing any gain. The

strength and power of a cow's digestive apparatus is indicated to a large degree by the character of the hide and hair.

You have all noticed in the show rings, the judge lift up the hide and hair with his hand. It is impossible for him to look into the cow and determine the character of her digestive system, but he can turn his face away and by the touch or handling qualities of the hide and hair there is conveyed to him by his sense of touch as indicated by the hide and hair, the condition of the inner and vital organs of the cow. In other words, the hide and hair is an outward continuation of the inner organs of the beast. If the hide is hard and stiff or the hair wiry and harsh, then there is something wrong either temporarily or permanently with the cow's digestive apparatus. If the cow's hide is soft and pliable, covered with hair that is oily, soft and silky, then the indication is that her digestive organs and her blood circulation are in good, active condition and that she will not only consume large amounts of food at one time but she will digest it readily and thoroughly and soon be ready for another feed. It is more desirable that a cow have a small body and small barrel, covered with hide and hair of the proper texture and handling qualities, than a large barrel covered with a hide and hair of objectionable quality.

The two points, constitution and capacity, are both essential.

The third point is the question of whether the cow is a worker or a loafer. If you have been watching this cow you have noticed that she has been working every minute since she has been up here. Whenever a cow chews her cud she is working and the persistency with which the cow eats and chews her cud is a good indication of her nervous temperament.

Another important indication is the size and character of the eye. The cow's head should be broad between the eyes, well dished and her eyes should be prominent, bright, placid and alert. The animal with dull, sluggish eyes set back in the head is as a rule a loafer, standing under the shade of a tree fighting flies in the summer time while her sisters are grazing back and forth across the pastures gathering food for the economical and profitable production of milk and butterfat.

A further indication of the proper nervous temperament is the

prominent and open jointedness of the back bone. You will notice as I pass my hand along this cow's back each of the spinal vertebrae stand out prominently with absolutely no covering of beef or fat. This is an indication that every pound of food this cow had consumed, outside of what has been necessary for her own maintenance, has been converted into milk and butterfat. Were this a beef animal, ripe and ready for market, you would find stored up and evenly distributed along her back from two and one-half to four inches of fat or beef. Every pound of food consumed by the cow that is manufactured into beef is lost and wasted from the dairyman's point of view. For this reason the animal which converts its food into beef and stores it on its back, regardless of what breed it belongs to, is a loafer from the standpoint of butter production. The same is true relative to other regions of the animal and you will notice the absolute freedom from beefiness throughout this cow's entire being.

The fourth essential point to be considered in selecting dairy cows is the blood circulation. To be of the productive type, the cow must not only have an abundant flow of blood but the course of circulation must be through the proper channels and in the right direction. Herein lies the great difference between beef and dairy bred animals. If you will study the workings of these two classes of machines, you will find that up to the point where the food has been assimilated the process of consumption and digestion are practically the same. After the food has been digested, in the case of the beef animal the blood is pumped out from the heart along the digestive apparatus, the digested nutrients picked up or assimilated and carried by the blood upward and deposited over the shoulder, the chine, the back, the ribs, the loins, over the hips, the rump and the hind quarters. The flow of blood is thus directed carrying all nutrients because for hundreds of years beef cattle have been bred by intelligent breeders for the specific purpose of consuming a large amount of food, digesting, assimilating and depositing over these regions of the body; because years ago the packer informed the breeder of beef cattle that the ultimatum of all his efforts was the block, and if he desired to secure from six to ten cents a pound for his steers instead of from three to four cents a pound, then it was necessary

to breed animals the offspring of which would utilize their food in developing the high priced cuts, namely, the porterhouse steaks and rib roasts for which the consuming public were willing to pay. The success with which the breeder of beef cattle has met is demonstrated at our state fairs and fat stock shows by a careful observation of the cattle exhibited.

On the other hand, when the real dairy cow has digested her food the blood is pumped out from the heart past the digestive apparatus, picking up the digested nutrients and carrying them, not up on top of their backs, but around through the udder where milk and butterfat are made. The first indication of the amount of blood passing into the udder is at the escutcheon, a portion just above the rear of the udder where the hair grows upward on each side of which the hair grows downward. It is believed that the hair covering the escutcheon is nourished by the blood in the vessels which are passing to the udder. An indication which determines more accurately the amount of blood passing through the udder is found in the mammary veins. All cows have two of these veins, one on each side of the abdomen. Some cows have straight, short veins ending in a small milk well. Other cows have veins that are large and tortuous, extending far forward, as do the veins of this cow, to a large milk well, an opening in the abdomen large enough to insert my thumb, and passing on to a second milk well, and sometimes on to a third or fourth. These are termed double extension veins. Some cows have three veins, one extending forward from the udder along the center of the abdomen between the two outside veins. Such a vein is termed a center extension. The size, length and tortuousness of these veins together with the number and size of milk wells, when found passing forward from the udder of the cow, indicates the amount of blood that is circulated past the digestive apparatus picking up food nutrients, carrying them to the udder and being rid of its load is on the way back to the heart and lungs for purification and to be pumped back again. I have never seen a good cow with small, short, straight mammary veins and I have never seen a cow with large tortuous veins and large numerous milk wells that was a poor cow. A consideration of the blood flow will determine largely the character of a cow from the standpoint

of milk and butterfat production. Feed deposited on the back of a cow can not be made into milk, and on the other hand, feed that is deposited by the blood in the udder of the cow can not be manufactured into beef, and for this reason a dairy bred animal is considered from the standpoint of beef production as a scrub, and likewise a beef bred animal from the standpoint of milk and butterfat production is a scrub. This is due to the fact that no animal can do two things with the same pound of food at the same time. In selecting animals whose ancestors have for hundreds of generations been bred for the purpose of putting their food on top of their back, and striving to induce these animals to turn the circulation of their blood around to the under line of the body instead of the top line, is working against nature and is quite as impossible as to produce high class rib roasts and porterhouse steaks on the backs of dairy bred cows.

The fifth essential is the ability of the cow to manufacture the digested food nutrients that have been brought to the udder by the blood, into milk and butterfat. Experience has demonstrated that certain types of udders have proven most efficient for this purpose.

The udder should be long, broad and of good texture. To gain length the udder must be attached high behind and extended far forward. You will notice on this cow that if a plumb bob were dropped from her hip downward, the line would fall just in front of her udder. If it were dropped from the pin bone, it would fall just behind the udder. Thus it is that good length from hip bones to pin bones is desired, for it is an indication of the length of udder development. Furthermore it is desired that the tail head carry straight out. Cows that drop at the rump because of the law of correlation have tilted udders, or udders with a portion of the fore quarters sacrificed. On the other hand, cows that carry out straight at the tail head, carry straight forward in udder development, adding to the size and capacity of front udder development.

As we turn this cow around you will notice that she is thin in the thighs, in fact, I measure the thigh with my thumb and finger, and she cuts up behind. This conformation is necessary in order to have a wide udder and is the formation described by the

term, thighs out-curving and in-curving. An udder that is long and broad with each quarter well rounded out and a teat on each corner, meets the specifications relative to form.

However, many of you, perhaps, have owned cows with such udders that were disappointments. The reason likely was because the udder had no texture or quality. This cow not only has a large, well-developed, shapely udder, but you will notice the presence of much quality and freedom from coarseness and beefiness as indicated by the textures, pliability and elasticity of the covering. You will notice the blood vessels, which indicate that branches from the large arteries are carrying the blood into the parts of the udder.

These are the five points and if you are milking a cow with any one of them absent or poorly developed, you are not milking a cow, but only a part of a cow. For instance, supposing a cow is capable of eating a large amount of feed but lacks constitution, she will not remain healthy and perhaps in a short time will die. Granting her constitution, without the proper nervous temperament or disposition to work, she will consume just enough food to take care of herself. And if she lacks capacity, she can not eat enough feed to make a profit regardless of her disposition to do so. Given constitution, capacity and disposition to work, if her blood flows in the wrong direction, she will make beef instead of milk and then it will be necessary to kill her to get the cost of the feed back. And further than this, if the blood carries the nutrients into an udder which has not the ability of manufacturing the nutrients into butterfats, still there is a loss. All of these points fit together in dove-tail fashion and must be given due consideration in selecting cows for profit.

There are other points, such as width across the hips, breed, type and characteristics, but time does not permit reference to more than those points which are necessary for profitable milk and butterfat production.

But after all, when we have taken into consideration these points we do not know much about the cow. There is no one in the audience who can look at this cow and tell within 1,000, 2,000 or 3,000 pounds how much milk she gave last year. If you did not know her breed, you could not tell within one of two per

cent. of how much her milk tested, were you to see a sample of it. The only way to determine the true measure of the cow is to use a scale each time the cow is milked and test her milk one or two days out of each month. It does not take long to do this and it is the only method of determining accurately the real merits of the cow from the dairyman's standpoint, and it is well worth while. Study the history of every great cow and you will find that at some time in her life she or some of her offspring were sacrificed because her real value had not at that time been determined.

Remember that in the United States, farmers are milking 14,000,000 cows no one of which makes anybody a profit, and that on the average farm in this country somebody is wasting 27.2 days every year.

By the use of sound judgment in determining the development of the essential points for butter production and the use of the scales and test, this great waste of feed and labor can be eliminated.

PROF. CHAS. TUCK (Presiding): The presiding officer, Mr. Smith, has not been able to remain for the rest of the afternoon. I know that there is a great deal of interest in this excellent demonstration and I believe there are questions that some of you would like to ask. I think for the benefit of others, some questions should be asked.

MR. CARMAN: Would you inbreed?

PROF. VAN PELT: There is only one time I should inbreed cattle, and that is when I am very confident that my cattle are practically as perfect as I ever could expect to breed them. I think inbreeding has one great value; it has one very strong recommendation and that is for fixing the type. I should not inbreed for any other purpose and I should advise no one to inbreed their cattle except those who contend that they are artists in the breeding of the animals they are trying to perpetuate. Inbreeding intensifies blood lines.

W. E. DANA: Do you intend that advice for the breeder of the thoroughbred herd, or the man who is building up a grade herd?

PROF. VAN PELT: Both. As I said before, he intensifies by inbreeding. The only question is whether or not it is advisable to

do that, because along with the good qualities which are intensified, the faults are also perpetuated. Personally, I would be very doubtful as to whether I would wish to inbreed in a herd of mine.

MR. HESS: Does the blood come from the heart down through the milk wells and through the mammary veins to the udder, or does it go the other way?

PROF. VAN PELT: The other way, back through the milk veins and wells to the heart and lungs.

MR. SCHANCK: Should there be any difference in the size of the milk veins of a three-year-old and a twelve-year-old cow, producing 9,000 pounds of milk per year?

PROF. VAN PELT: There certainly would be. The milk veins like any other part of the animal develop with age and those things must be taken into consideration. There is no doubt but that the cow fresh and producing largely has a larger vein than would the same cow during the end of her parturition period when producing less.

MR. ANDREWS: Where should the line be drawn between inbreeding and line breeding?

PROF. VAN PELT: It is difficult to say just where this line should be drawn, but by inbreeding we mean breeding together animals very closely related; by line breeding, the breeding together of animals that are remotely related. I think an illustration of inbreeding would be, breeding a sire back to his daughters, and breeding together brothers and sisters. Line breeding is more remote and I think one of the most advisable methods of quickly and without danger getting into your herd the blood you desire there, without the liability of injuring your herd, as may be done through inbreeding.

MR. HOGUE: Does the care of the cow from the calf up to the time of beginning to give milk affect these characteristic points?

PROF. VAN PELT: I am certain that it does. Then prior to birth, I think there are many calves born into this world which, if they had been properly nourished prior to birth and from birth to maturity, would have been profitable cows.

MR. SCHANCK: Would it be preferable to have a heifer begin giving milk at two or three years of age?

PROF. TUCK: What do you think about it?

MR. SCHANCK: I should say two years, if you will open a gap of eighteen months before the next calf.

PROF. VAN PELT: That depends on the way in which a heifer has been raised and the maturity she presents at 15 or 18 months of age. I would rather have my heifers freshen at two years than three, providing I had grown them up to breeding time myself.

MR. DENNIS: Is it advisable to milk a cow just previous to time of calving?

PROF. VAN PELT: Because of the advisability of encouraging persistency, cows should be milked up to a certain time prior to freshening. It is very advisable, however, to give cows from four to six weeks rest between milking periods. There is no doubt in my mind but that by proper care and feeding we can secure just as much butterfat and production from our cows in ten months as we can in twelve.

MR. BOPHRY: If one has a herd of cows that are lacking in any points and feels that he can not dispose of them, can he breed a good herd by the use of good sires?

PROF. VAN PELT: I tried to bring that point out in my talk. Absolutely, I think that is the way to do it. If we select our sires with the idea of counteracting the weaknesses in the cows we are milking, and save their offspring, then by the use of another good sire make another increase in the productivity of our cows, we can accomplish these results. It is within our power to so select our sires, and it has been proved by demonstration that we can so select them, that we may increase the productivity of our herds to the extent of one hundred pounds of butter per cow per year, or even more. What we really need is the right kind of sires.

MR. GRIFFITH: In selecting a dairy cow, which would you lay the most stress on, pedigree or production?

PROF. VAN PELT: In selecting cows, between pedigree and production, if you sacrifice one you will wish you had sacrificed the other. If you are selecting a cow for the milk she will produce alone, you should select her from the standpoint of production. If you wish to select a cow from the standpoint of a breeder, then you must consider pedigree. If you will get the animal with a pedigree that absolutely shows how, for generation after genera-

tion in years gone, her ancestors have been producers, really you do not need to fear you are not going to have a producer. I see no reason why we should not have both pedigree and production in one, and not sacrifice either.

PROF. TUCK: I think that I voice the sentiments of all in saying to the Professor that we really appreciate what he has said here this afternoon.

There was a committee appointed a year ago to discuss the extension work of this association, and that committee makes this report now: That in its judgment this association can not engage in extension work, because that is now being done by the state. Personally, as chairman of that committee, I wish to make this suggestion in the presence of the President and others interested, that there ought to be held in one place during the same week, meetings of at least three kindred associations of the state, namely, the Dairymen's Association, the Breeders' Association and the State Agricultural Society. I make that purely as an informal suggestion.

I am asked by the President to announce that tomorrow at 10 o'clock the officers of the association will meet at the Onondaga hotel.

Tonight at 8 o'clock, Chancellor Day of Syracuse University will give an address which according to the program was to be given by Governor Glynn. The Association regrets that the Governor finds himself detained in Albany on account of important legislation due to this special session. We hope that as many of you as possible will be present tonight.

If there is nothing further we will stand adjourned until 8 o'clock tonight.

SEVENTH SESSION

THURSDAY, DECEMBER 11, 8 P. M.

MR. DOLLAR: I always think it unfortunate to have to make apologies for a change in the program, because it does not matter what that change may be some people usually are more or less disappointed. When we made out this program we expected to have the Governor with us tonight, and I suppose that the reason we were led to expect that was somewhat of an oversight on the part of somebody in not taking into consideration the important things that would be in the Governor's mind just at this particular time. We know that the Legislature is in session and that it is absolutely necessary that he should be in Albany. However, to show you that he still has an interest in the work which we are doing, we have a very interesting letter from him which I should like to read:

STATE OF NEW YORK — EXECUTIVE CHAMBER

ALBANY, *December 11, 1913.*

MR. E. H. DOLLAR, *President, New York State Dairymen's Association, Syracuse, N. Y.*

MY DEAR MR. DOLLAR: I sincerely regret that I will be unable to attend the meeting of the New York State Dairymen's Association at Syracuse tonight. Official duties of great importance renders my presence here imperative.

I appreciate the magnitude and importance of the dairy interests of our state. The State of New York is indeed the Empire State when its great and growing dairy interests are considered. More people are engaged in the production and marketing of dairy products than in any other single agricultural activity in which the farmers of our state are engaged.

The farmers and dairymen of New York are producing more than a hundred million of dollars worth of dairy products per annum. We lead all other states not only in the quantity produced, but in the quality as well. The last Federal census discloses the fact that there are 1,500,000 dairy cows in the state of

New York, and that the average value of their products is \$15 per cow in excess of that of any other state. These facts indicate that the dairymen of the state of New York are a progressive and intelligent body of men and fully abreast of the times in the conduct of the business in which they are engaged.

But gratifying as are these facts, you are, I suppose, confronted with various problems in connection with your business, and have been, during your sessions, considering those questions that have to do with future prosperity and success of the dairy interests of the state and those engaged in it as a means of livelihood.

You are engaged in the production of food products that are consumed in every household in the state. It is essential to the continued success of your business that the standards of New York State dairy products should be kept very high, so that no suspicion will ever arise on the part of the great body of consumers regarding the purity, cleanliness and healthfulness of our milk, butter and cheese. Your organization has done and is doing very much in that direction, and I am pleased to learn, is co-operating with the State Department of Agriculture in the enforcement of the law regulating the production and marketing of agricultural products.

The business in which you are engaged, as I view it, involves two distinct propositions: First, the production of your product, and second, its distribution or marketing. Your efforts would avail but little if directed solely toward increased production, provided you are unable to find a market at a price that will furnish a fair and reasonable profit for the labor expended and capital invested.

There is concededly too wide a difference between what the farmer receives for his products at his farm or shipping station and what the city consumer is required to pay for it.

To my mind the questions involved in the marketing and distribution of our food products present some of the most important public questions with which we have to deal.

The prices of some of the most necessary of our food products have advanced to such a sum as to be almost prohibitive to persons of moderate income of the town or city, yet the farmer who produces these articles is receiving less than 40 per cent., in many cases, of what the city consumer is required to pay.

No one will assert that farmers are receiving more for their products than they should. On the contrary, it must be conceded that many of the products of our farms are sold at a price that fails to adequately compensate the farmer therefor, and that the high cost of our food products to the consumer is the result of the present system by which they are distributed and marketed.

A system of cooperation by which the producer and consumer can be brought closer together, and the cutting out of a number of hands through which food products now pass on their way from the farm to the city home, will do much towards solving some of the vexing questions involved in the distribution of our food products.

I assure you of my earnest desire to cooperate with your organization and the great body of farmers of our state, as well as the consumers of food products, to the end that the cost of distribution may be so lessened and cheapened that the individual consumer will be required to pay less for the things he must buy, and at the same time the farmer who produces them receive a more generous compensation for their production.

Expressing my high appreciation of the courtesy of your invitation to address you this evening, and my sincere regret that I am unable to be present and meet personally the members of your association, I am,

Sincerely yours,
(Signed) MARTIN H. GLYNN.

MR. DOLLAR: I am sure we regret also that Governor Glynn could not be with us. At the same time I think many of us appreciate the fact that very important matters taking his attention should be looked after even though we must get along without him.

We thought the Governor would be with us tonight and had arranged a program for his entertainment here at Syracuse. Our Syracuse committee thought it very fitting that they should invite Chancellor Day to introduce the Governor, and inasmuch as the Chancellor had consented we at once turned to him to address you in the Governor's stead. It gives me great pleasure to introduce to you Chancellor Day.

CHANCELLOR DAY: I am astounded at myself. I am accustomed to being placed in all sorts of awkward positions, but tonight I am surprised that I should have consented to come here and fill the place of the Governor of the State of New York. It is certainly rather an audacious thing to have to fill the place of an orator of the ability of Governor Glynn with whom I have spoken on banquet platforms and of whose eloquence I have personal knowledge.

The Governor is in Albany tonight, not because he is less interested in the great agricultural life of the state and especially the dairy interests, but because these are times of politics. I do not mean in any offensive sense. Perhaps I ought to say times of statesmanship. A time when the Legislature is together for a short time. It has been meeting for short times during most of the year. Now it is to conclude itself pretty soon and the Governor has some measures and messages that are to be addressed to the Legislature, and he must stay there. We have a very peculiar way of legislating in this great America of ours, both at Washington and the state capitol. The head of the nation or the head of the state has to see to it individually and personally that the legislation is done right. A sort of strange way for a democracy to get into, and I do not altogether understand and appreciate it. The old-fashioned way of senators and representatives doing the business of the country with some guiding and accommodating advice from the head or executive, seemed to be rather in the line in which we were projected, but in these days of apparent necessity the executive must project the legislative measures, must see that they are carried out, must stay by until this is done. The President must give up his summer vacation. The Governor can not afford to be away from the capitol of the state. It is a new order of things.

It is the workingman's compensation act that is taking the attention of the Governor tonight. A very good measure without any doubt, but I can not help thinking of the capitalists' compensation act also, or wondering what will become of him. It is a time when they are going to take care of the farm hand, but what about the farmer? It is a time when they will take care of the

mechanic, but what about the manufacturer? It is a good thing to take care of the boys, the farm hands, the mechanics, the artisans and all of them, but is it a fair adjustment of compensation? Your man has his leg broken by a kicking horse. He has to be taken care of, he has to be compensated, but the question never arises as to whether he knew enough to drive a horse, nor who is going to mend the wagon that he caused the horse to kick to pieces when the horse legitimately broke his leg. Who will take care of mending the machine that the artisan breaks because of his stupidity or his carelessness? Is there any side like that to the question? Well, I am not here to discuss that question. I am only here to throw out an allusion on a subject that may have some delusions, and to suggest some queries, for it seems to me that the drift is full swift enough out into the socialistic aspect of the business in the old world today.

I congratulate you on having come to Syracuse, and I hope you will come next year. I have been here for about twenty years. It has a climate that has all the varieties of the United States of America; has a people of great variety but of great unity, stability, character, intelligence and progressiveness, — not speaking politically — has all these things that have power in making a great community. We have a Governor in Syracuse. You do not need to go to the hill up here for the Chancellor, we have a Governor. We have a judge and chief justice of the court of appeals. We have some supreme court justices. We have a United States Senator. We have a collector of customs of the great State of New York. We have some State Senators. We have some great scholars. We have great manufacturers. We have inventors. We have men who are enjoying the laurels of the past or living in hope of the glory of the future, who could just talk to you by the week if you will continue to come here every year in the future, and I will promise to give place to them.

Now, as to this particular subject. What do I know about it? Why, that is the easiest thing about the whole business with me here tonight because it takes longer for a man to tell what he does not know than to tell what he does know. Therefore, I could talk a long while and not lack for material, just to tell you what I do not know about this subject. If I were to tell you of my intense in-

terest in this subject I certainly would speak with fervor, ardor and earnestness, because I have a deep interest in the subject. Agriculture is as a foundation to about everything there is on this continent and if you were to move it out from under the different interests in this country, those interests would collapse instantly. With all the boast of commerce, all the boast of manufactures, discoveries and all that sort of thing, in every case everything must come to this source for its sustenance and without this sustenance it perishes from the face of the earth. You are the men, you are the women who make it possible for the city to live in the city. If there were a blizzard here tomorrow that would last over twenty-four hours, there would be a tremendous outcry from everyone of our avenues and streets, "Where is the milk man?" and there would not be much to take its place. Do you know those aristocrats that live in the cities, those fat-sided fellows, scarcely ever think about you at all; you are as a matter of indifference to them except in the summer time when they go out to visit their relations. And yet everyone of us breathes no more directly the vital air out of the skies than we live on the products of the farm, from its potato hills to its dairy barns.

I am greatly interested in everything that relates to the country. I like to remember a certain occasion when I was in the pastorate, I had before me some thirty men, officials of one of the great churches in New York City. They were business men, and I heard one of them speak sneeringly of the country. I said, "Hold on there, that hits me. That is where I came from." I asked how many of these men were born in the city of New York or any other city. I think there were just two, and they were the two little fellows. All the rest of them came from the country. I rejoice in remembering that.

I was a lumberman's boy; I remember the sawmills, the logs driving down the streams, and the lumber being carried over to the seaport; but when I was a lad, big enough to be called a lad, I became a farmer's boy, because my father became a farmer. He was said to be an intelligent farmer, a good farmer, but I was thinking as I walked through the halls above and looked at the assembled mass of machinery, what a tremendous revolution has taken place, and my old father would not know how to begin if

he were to arrive suddenly out of the unseen. He would think the 'Old Boy' himself had gotten into his herd of cows if he were to suddenly appear and find that machine they were operating a few minutes ago beyond the wall. He would not know what had happened to the milk if he saw the whirling machinery giving out a stream of milk and a stream of cream from the respective spouts. He would not know what pasteurization meant. He would not know anything about the new ideas that pertain to the health of herds and the healthfulness of milk. Bacteria! What are bacteria? Where are bacteria from? He would not know anything about them. He would know nothing about the various discoveries for the advancement of the dairy interests in any of those forms. It was the old-fashioned way. The big open-top milk pail into which you milked. You had not taken pains to brush off the udder, you certainly had not washed it before you started to milk. When the pail was full with the foam running over, you carried it off somewhere and poured it through a strainer and then into its respective pans. That was the end of it. But then it did have, as that old-fashioned farmer said, it did have "the good old-fashioned taste" you do not get now. That was enough in those days. They knew nothing about tuberculosis—and they did not have it, because you could throw a cat through the cracks of the barns almost anywhere. There was plenty of air. The thing that spoils tuberculosis is good air and lots of sunshine. While we have been improving, we have not been improving altogether the health of our herds, by making close-walled barns and fancy arrangements. But all these things have sprung up within this comparatively short time. I think it was in 1880 they began to get hold of the cream separator. As late as that. That is a short time ago. It was at the close of the last century they began to hold associations like this, and all this immense discovery we have up on the upper floor has all come in in the age of the middleaged men who are in this audience tonight. They remember back as I remember, when there was nothing of the kind on any farm.

I was a boy on the farm, watching the cows, bare-footed on a frosty morning, not altogether enjoying my lot, and doing the things that were simple and plain, plowing and harrowing in

season, milking and helping make the butter and cheese. Why, certain of the older men can remember doubtless when certain women of the neighborhood were complimented on having butter hands. What were butter hands? Cool hands. So they made their butter with their butter hands. Who would think of touching butter with the hand in these days? Now they have a churn that does all the business, churns and works the butter and gets it all ready to be packed and all you have to do is to reach in with a wooden hand and take it out and put it into the proper receptacle. Why? Because you must not touch it with your hands.

There has been a tremendous change since you and I were boys; it is a mighty thing for the health of the people. If there is anything on earth that is repulsive to us all it is impure, unclean, tainted milk. Everybody must use it; use it in our food; use it in our coffee; use it in all the various products that enter into the nourishment and sustenance of the home; use it sometimes almost exclusively. It has got to be clean, it has got to be pure. It sends more babies to their death because it is impure than any other one cause on the continent. It sends more people into tuberculosis than any other one thing except impure air. It must be pure. It is a moral obligation that rests on us, to have the milk of the dairy pure, as absolutely pure as it is possible to be.

What do I think are some of the essential things, the practical things of a dairy farm? I had rather have such a farm than to be the Czar of Russia. I wish sometimes I had been prudent enough, fortunate enough in my investments to make that sure when I get through with the present job. It is a great life, to live among the hills. A great life to live under the sun and under the clouds; a great life to be out there where it is free and great and glorious as God made it. I would like it. I envy you. I think there are a certain few things that you men need to emphasize continually. I think one of the things that ought to be written on the interior walls of every dairy barn every ten feet is "Cleanness," so that every farm hand will see that one word, cleanness, and when we get our new University dairy barns that is what I want to do, put up that one word; that the thing shall be *clean* everywhere. Clean! It should be so enforced that when you walk up and down among the cows you are offended by none of those sights that were

so common in the old time. The cow must be clean, the barn must be clean, the utensils must be clean, the milking stool must be clean, everything must be clean. Dust and cobwebs must be swept down. That is where you knock your bacteria between their two eyes.

Then healthfulness: They should be healthful cattle, and it can be proven whether they are healthful cattle. You may say that the tuberculin affair is a little overworked, but the diagnosis is not overworked, and the two combined with an intelligent veterinary to go around at certain intervals will secure knowledge as to the healthfulness of a herd of cows, and the unhealthful cow is a crime in the herd. The conditions must be sanitary; drainage must be good, and the food must be healthful.

Gentleness: I would not have a barking dog anywhere around a dairy any more than I would have a cussing man. A cow is a lady, and should be treated as a lady. The farmhand who hits her with a milking stool ought to be kicked by her with both feet. Sometimes he is. The man who swears and bellows in a dairy barn ought to be kept out in the yard where he will have room enough for all that sort of thing. He ought not to be permitted to talk any such language to a cow, she is too religious to be treated that way. She resents it. She resents it in the milk pail, she resents it in her manner, she will not feed as well, she will not behave as well, she will not be as contented, she picks that fellow out with her two eyes. She knows that sort of a man as soon as he comes around the corner. She does not want him, she tries to get away from him, she pulls back in the stanchion because she knows he is wicked. The man who is gentle in his conversation, gentle in his touch, treats her as a lady, bows to her as a lady, meets her on these terms of gentility,—that is the kind of a man you want in your barn, and you do not want that rough, coarse, swearing, vulgar fellow who goes around stirring up the whole herd of cattle. I would not send a dog into the pasture to drive my cows home. That is a very bad practice. I spend my summers in the woods of the Adirondacks. There is a certain road through which cows of a neighbor go. I see them going to pasture on the run. They have udders that are like goats' udders, just about as big. They can not be a milking herd. You have to be gentle to your cows. These are simple, plain everyday sort of things.

You may say you know them line upon line, precept upon precept. Do you practice them?

Another thing, I would know my cows according to the book. It takes some time and you do not want to do it, but I would know them according to the book. I would have a board up there and have it arranged in certain columns and have every cow arranged by her name. I would know just how much milk she gave every time. I would milk that herd out by the scale until I knew just what each cow is doing and then I would know whether to keep her or to sell her for the market. There are a lot of us keeping cows we had better sell. You should know whether you are putting your grain into a mill and it is coming out milk and butter or whether you are feeding it without any profit. So it seems to me it is a matter of immense importance to keep a certain kind of bookkeeping with regard to these matters and to be very insistent on it, very practical with regard to it.

The cow is our delight, our hope, our pride. I saw them milking goats in Naples and other parts of Italy; I saw them milking camels in far off India; they milk mares out on the deserts of Arabia. We have the cow, and we can almost worship the cow. If we were going to choose any animal for idolatrous worship, we could well choose the cow. I saw them in Benares, India, in a great assembly worshipping a cow. The cow stood there in her majesty and her gentleness and she was the object of their adoration. I could almost guess why. She embodies so much within herself. She offers so much when she is through with her ministration of milk and butter and cheese. She lets herself be worked up into practical uses for the multitudes. She stands in her kindness to administer to them day after day. Take the cow, take the hen, take the pig, and take the mechanic, the artisan or the laborer and give him a little patch of land on the outskirts of the city where he can ride in on a bicycle or a motorcycle, and one of these days be able to have an automobile, and I would like to know what on earth a man wants of a bigger fortune than that. If that man is not a millionaire, I do not know who is. What a wonderful arrangement the Almighty has made for everybody in the things that you have come here to exhibit and to illustrate and enforce to the people of this city and the people of this great state.

I congratulate you and I hope that your association may con-

tinue to increase in vigor and numbers and efficiency, because in it I see the hope of the people.

MR. DOLLAR: This is the last session we will be together at this convention. It would be impossible for me to undertake to thank each and every one of you who have done so much to make this convention a success. I want to thank you all and hope you will attend the next convention and give the new set of officers the same cooperation you have given me for the last two years.

BY-LAWS OF THE NEW YORK STATE DAIRYMEN'S ASSOCIATION

Section 1. Any person who shall pay into the treasury of the association one dollar shall be a member of the association until the next annual meeting, and any person who shall pay into the treasury five dollars shall be a life member and exempt from any annual payment. Honorary members may be elected by a majority vote at any annual meeting of the association in recognition of services rendered to the dairy interests of the state, and they shall be entitled to all privileges of membership except voting for officers.

Section 2. The full management of the affairs of the association shall be in the hands of a board of directors, which shall consist of the president, secretary and treasurer of the association, ex-presidents as provided in section 4, and six elected members.

Section 3. The association shall hold an annual meeting at such place as shall be determined by the board of directors, to commence on the second Tuesday of December, unless some other date shall be selected by said board. At such convention at least two sessions shall be devoted to subjects concerning butter and cheese making.

Section 4. The elected officers of this association shall be a president, vice-president, honorary vice-presidents, secretary, assistant secretary, treasurer and six directors, and they shall be chosen at the time of each annual meeting and from among the life members of the association, and at the session during which the election of officers is indicated on the program.

The officers shall enter upon the duties of their respective offices thirty days after election and shall hold office for one year or until their successors shall be duly elected and qualified.

Every ex-president of the association shall be ex-officio member of the board of directors for five years after the expiration of his term of office as president.

Section 5. No person shall be eligible to the office of president of this association for more than two years in succession. The president shall be ex-officio chairman of the board of directors.

Section 6. The vice-president shall perform the duties of the president in his absence.

Section 7. The secretary shall keep the minutes of all meetings, be ex-officio secretary of the board of directors, and in case an exhibition of apparatus and products is held, the usual duties of such an exhibit shall devolve on him. He shall conduct the correspondence of the association, receive all moneys due it, and promptly remit same to the treasurer.

Section 8. The assistant secretary shall perform such duties as may be assigned to him by the secretary.

Section 9. The treasurer shall receive the moneys from the secretary, keep a strict account thereof and pay them out on the order of the secretary.

Section 10. The books and accounts of the secretary and treasurer shall be examined by an auditing committee to be appointed at each annual convention by the president.

Section 11. The board of directors shall decide each year whether or not an exhibition will be held in connection with the annual convention, and in case an exhibition is held, the president, secretary and treasurer shall constitute an exhibition committee, which shall have full charge of the exhibition and authority to enter into necessary contracts. This committee shall also have power to annul the exhibition if circumstances so require.

Section 12. Public notice of any regular meeting of the association shall be given by the secretary at least thirty days before the date of said meeting, and a written or printed notice of said meeting shall be mailed to each member of the association. All meetings of the board of directors shall be called by the president, or by any three directors. The secretary shall send to each director a notice of any meeting at least five days before the date of its occurrence.

Section 13. Any vacancy which may occur in the board of directors or in any office of this association may be filled by the board for the unexpired term for which such officer was chosen.

Section 14. The place of business of this association shall be where the secretary has his place of residence.

Section 15. At each annual meeting the president shall appoint the following committees from among the life members of the association. A committee on resolutions of five members, a nominating committee of three members.

Section 16. The board of directors shall require the secretary and treasurer to give a good and sufficient bond.

Section 17. A quorum of the board of directors shall consist of five members. A majority of the members of any committee shall constitute a quorum.

Section 18. These by-laws may be amended by a majority vote of the members of the association present at any annual meeting, provided a copy of the proposed amendment has been transmitted to the members of the association with the notice of the said meeting.

EXHIBITORS

The following is a list of the exhibitors at the 1913 meeting of the New York State Dairymen's Association. The association is deeply indebted to these exhibitors for their loyal support, both in advertising the meeting and by their presence at the convention:

American Guernsey Cattle Club, 20 Grove street, Peterboro, N. H.

Associated Mfgs. Co., 129 S. Franklin street, Syracuse, N. Y.

Geo. Brisbane & Co., Clyde, N. Y.

Corn Products Refining Co., 17 Battery Place, New York City.

Champion Milk Cooler Co., Cortland, N. Y.

Chapin & Co., 7 Merchants Row, Boston, Mass.

Colonial Salt Co., Buffalo, N. Y.

Cornell Agricultural College, Ithaca, N. Y.

Davis Milk Machinery Co., 216 N. Clinton street, Chicago, Ill.

De Laval Separator Co., 165 Broadway, New York City.

Department of Public Safety, Syracuse, N. Y.

Dominion Chemical Co., Syracuse, N. Y.

Drew Elevated Carrier Co., Inc., Rome, N. Y.

Emery Thompson Machine & Supply Co., 235 E. 41st street, New York.

Empire Cream Separator Co., Bloomfield, N. J.

The J. B. Ford Co., Wyandotte, Mich.

Gehl Bros. Mfg. Co., 121 Water street, West Bend, Wis.

F. Groff & Son, St. Johnsville, N. Y.

D. W. Gowing & Co., Syracuse, N. Y.

Chr. Hansen's Laboratory, Little Falls, N. Y.

International Harvester Co. of America, Auburn, N. Y.

James Manufacturing Co., Fort Atkinson, Wis.

Louden Machinery Co., Albany, N. Y.

Merrell-Seule Co., Syracuse, N. Y.

Miller Pasteurizing Co., Canton, Ohio.

Molassine Co. of America, Boston, Mass.

National Chemical Co., Syracuse, N. Y.

New York State Department of Agriculture, Albany, N. Y.

Ontario Iron Works, Pulaski, N. Y.

Palmer-Moore Co., Syracuse, N. Y.

Quaker Oats Co., Syracuse, N. Y.

Sharples Separator Co., Westchester, Pa.

Syracuse College of Forestry, Syracuse, N. Y.

Torsion Balance Co., 92 Reade street, New York City.

The Vermont Farm Machine Co., Bellows Falls, Vt.

Wells & Richardson Co., Burlington, Vt.

Worster Salt Co., 71-73 Murray street, New York City.

LIFE MEMBERS

A

Aldrich, H. G.....	Gouverneur, N. Y.
Allen, L. L.....	Watertown, N. Y.
Austin, H. E.....	Whitesville, N. Y.
Andrews, Windham	Newhope, N. Y.

B

Baker, A. D.....	Aurelius, N. Y.
Baker, J. V.....	Gouverneur, N. Y.
Bauder, F. W.....	Fort Plain, N. Y.
Barnasky, Geo. W.....	Greene, N. Y.
Baumert, Chas. H. J.....	Antwerp, N. Y.
Baird, J. H.....	Speedsville, N. Y.
Beardslee, W. E.....	Arcade, N. Y.
Burlingham, W. F.....	Frewsburg, N. Y.
Bean, M. C.....	McGrawville, N. Y.
Bent, Roy H.....	Antwerp, N. Y.
Baumert, Jos. A.....	Antwerp, N. Y.
Beebe, Verlett C.....	Arcade, N. Y.
Benton, H. F.....	Cortland, N. Y.
Blanding, Frank	Hubbardsville, N. Y.
Boynton, J. E.....	Portland, Ore.
Buckley, Wage	Port Jervis, N. Y.
Burger, Chas. F.....	New York, N. Y.
Burrell, E. J.....	Little Falls, N. Y.
Burrell, Loomis	Little Falls, N. Y.
Butts, M. N.....	Cuba, N. Y.
Blish, Otis	Halcott Center, N. Y.
Brownell, William.....	74 John St., New York, N. Y.
Bull, Geo. E.....	Rural Hill, N. Y.
Brown, A. E.....	Syracuse, N. Y.
Barnett, Maurice.....	11 Pine St., New York, N. Y.
Brown, A. C.....	West Monroe, N. Y.
Beachnut Creamery Co.....	Leroy, N. Y.
Baker, A. W.....	Genoa, N. Y.
Brainardsville Creamery Co.....	Brainardsville, N. Y.
Bassett, R. N.....	Burke, N. Y.
Bodurtha, F. P.....	Bainbridge, N. Y.
Bradley, E. C.....	Madrid, N. Y.
Babcock, F. M.....	Gouverneur, N. Y.
Bailey, Prof. L. H.....	Ithaca, N. Y.

C

Campbell, Arba	Oswego, N. Y.
Carman, Geo. W.....	Mecklinburg, N. Y.
Carpenter, R. W., cr. Onondaga Milk Ass'n.....	Syracuse, N. Y.
Cain, M. T.....	Elmira, N. Y.

Church, Seth R.	Syracuse, N. Y.
Cheney, Newel	Poland Center, N. Y.
Childs, S. A.	Malone, N. Y.
Chandler, Herbert G.	Ogdensburg, N. Y.
Clark, Harry N.	Potsdam, N. Y.
Clark, J. P. E.	Binghamton, N. Y.
Clark, A. L.	Copenhagen, N. Y.
Clarke, C. T.	Canton, N. Y.
Cook, Allison	Denmark, N. Y.
Cook, H. E.	Canton, N. Y.
Converse, F. A.	200 Pearl St., Buffalo, N. Y.
Coggswell, P. J.	Rochester, N. Y.
Combs, M. D.	Holland Patent, N. Y.
Comstock, W. G.	Chuckery, N. Y.
Cotton, A. S.	Clifton Springs, N. Y.
Counselman, J. F.	Newark Valley, N. Y.
Collier, D. M.	Savano, N. Y.
Cochran, Wm. F.	East View, N. Y.
Cole, B. J.	Willink, N. Y.
Coons, Samuel	
Cooper, Geo.	Morristown, N. Y.
Crasper, B. S.	Waddington, N. Y.
Crittenden, Amos G.	Cincinnati, N. Y.
Cuddeback, Penj. E.	Port Jervis, N. Y.
Curtis, Albert W.	Utica, N. Y.
Curran, Edward	Utica, N. Y.
Carr, Frank J.	Tully, N. Y.
Clark, Manly	Suffolk, N. Y.

D

Daniels, W. H.	Ogdensburg, N. Y.
Dawley, F. E.	Fayetteville, N. Y.
Davendorf, Abram	Minden, N. Y.
Dillon, John J., "Rural New Yorker"	New York, N. Y.
Dockstader, M. W.	Evans Mills, N. Y.
Douglass, C. C.	Chateaugay, N. Y.
Dryden, C. J.	Copenhagen, N. Y.
Dunaway, F. P.	Watertown, N. Y.
Dunham, W. C.	Cuba, N. Y.
Dusenbury, E. G.	Olean, N. Y.

E

Eastman, R. S.	Belleville, N. Y.
Eastman, Almond R.	Waterville, N. Y.
Eibert, Henry	Skaneateles, N. Y.
Ely, L. D.	Rochester, N. Y.
Ennis, J. A.	Pattersonville, N. Y.
Erickson, Henry	Kennedy, N. Y.
Elwood, H. C.	Buffalo, N. Y.
Everett, E. A.	Potsdam, N. Y.

F

Farmers Cooperative Creamery Co.....	Crown Point, N. Y.
Fauson, F. W.....	Bergen, N. Y.
Fisher, A. E.....	Madrid, N. Y.
Fitch Bros.	Morris, N. Y.
Fitzgerald, L. J.....	Cortland, N. Y.
Flanders, Geo. L.....	Albany, N. Y.
Fowler, Ralph C. H.....	Auburn, N. Y.
Frederiksen, J. D.....	Little Falls, N. Y.
Fulton, J. E.....	Carthage, N. Y.
French, R. A.....	Bennington, N. Y.

G

Giles, W. N.....	Skaneateles, N. Y.
Genesee Salt Co.....	Piffard, N. Y.
Gilbert, Harris	Sidney, N. Y.
Gillespie, Geo. J.....	20 Vesey St., New York, N. Y.
Gillett, Eilson G.....	Marcellus, N. Y.
Gilmour, Robert	Morristown, N. Y.
Goodrich, D. A.....	South Champion, N. Y.
Godfrey, F. N.....	Olean, N. Y.
Gordon, S.	Chazy, N. Y.
Gordon, M. E.....	Rushford, N. Y.
Grant, R. P.....	Clayton, N. Y.
Gray, Stephen H.....	Elmira, N. Y.
Griffith, W. E.....	Madrid, N. Y.
Griffith, William D.....	Oakwood, N. Y.
Groff, Floyd B.....	St. Johnsville, N. Y.
Gregory, M. C.....	Unadilla, N. Y.
Green, Wilson	Willett, N. Y.
Grant, H. L	Copenhagen, N. Y.
Gibby, J. L.....	Arcade, N. Y.

H

Hall, Lott	Gouverneur, N. Y.
Hall, William A.....	11 Pine St., New York, N. Y.
Hall, Fred P.	Jamestown, N. Y.
Harrington, A. D.....	Oxford, N. Y.
Harrington, O.	West Bangor, N. Y.
Harding, H. A.....	Geneva, N. Y.
Harter, I. S.....	Otisco, N. Y.
Harter, G.	Otisco, N. Y.
Hapgood	Malone, N. Y.
Halliday, Jas. E.....	Massena, N. Y.
Hargrave, A. B.....	Heuvelton, N. Y.
Heller & Mertz.....	New York, N. Y.
Helmer, A. E.....	Evans Mills, N. Y.
Howard, W. R.....	Newark Valley, N. Y.
Hogue, Jas. A.....	Angelica, N. Y.
Hogue, Geo. E.....	Arcade, N. Y.

Hotten, Nicholas	Franklinville, N. Y.
Hunter, John	Sterling Valley, N. Y.
Hunt, I. S.	Adams, N. Y.
Hungerford, William	Ithaca, N. Y.
Hyde, Fred W.	Jamestown, N. Y.
Hyde, Geo. O.	Cortland, N. Y.
Hobart, W. W.	Friendship, N. Y.
Holliday, Frank	Massena, N. Y.
Harkness, E. R.	Delhi, N. Y.
Hollingworth, D. H. W.	Utica, N. Y.
Hayes, Fred J.	Potsdam, N. Y.

I

Isbell, E. C.	Cattaraugus, N. Y.
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J

Jackson, D. C.	Boonville, R. F. D., N. Y.
Jay, Albert H.	193 Elm St., Utica, N. Y.
Johnson, Allen	Malone, N. Y.
Jones, Gen. Ed. F.	Binghamton, N. Y.
Jones, Frank L.	Utica, N. Y.
Jones, O. E.	Jamestown, N. Y.
Jones, E. L.	Delavan, N. Y.
Jordan, Dr. W. H.	Geneva, N. Y.

K

Kay, William E.	Herkimer, N. Y.
Kellogg, O. U.	Cortland, N. Y.
Kent, D. E.	Lowville, N. Y.
Keller, W. H.	Fulton, N. Y.
Kelly, Dr. W. H.	233 Western Ave., Albany, N. Y.
Kenney, F. B.	Belvidere, N. Y.
Kirkland, Robt. R.	Philadelphia, N. Y.
Kilmer, C. B.	Rock City Falls, N. Y.
Kinne, H. E., Jr.	Syracuse, N. Y.
Knapp, W. H.	Cortland, N. Y.
Knapp, B. R.	Cortland, N. Y.
Knox, H. M.	Canton, N. Y.
Knapp, C. L.	Lowville, N. Y.

L

Lamont, C. M.	Owego, N. Y.
Lanton, A. W.	Auburn, N. Y.
Langwill, Peter	Rochester, N. Y.
Lang, H. C.	97 Warren St., New York, N. Y.
Lawson, W. H.	New York, N. Y.
Lalone, Judson A.	Richville, N. Y.
Livingston, John	New York, N. Y.
Law, Dr. James.	Ithaca, N. Y.
Lyon, F. M.	Hobart, N. Y.

M

McAdam, Robert	Rome, N. Y.
McAdam, W. H.	Heuvelton, N. Y.
McBane, A. D.	Brockport, N. Y.
McAllister, Geo.	Antwerp, N. Y.
Matteson, H. S.	Morris, N. Y.
Mather, J. J.	Bishop Street, N. Y.
Matther, W. M.	Belleville, N. Y.
Martin, Geo.	Ithaca, N. Y.
Maxon, Grove	Cortland, N. Y.
Merry, Fred	Verona, N. Y.
Miller, Dr. P.	New York, N. Y.
Miles, Ira C.	Edwards, N. Y.
Miller, D. H.	Albana, N. Y.
Moreland, Forest G.	Ogdensburg, N. Y.
Morris, C. D., Dr.	Pauline, N. Y.
Moore, Dr. V. A.	Ithaca, N. Y.
Mott, Frank	Cuyler, N. Y.
Munson, E. S.	Franklin, N. Y.
Mather, A. G.	Belleville, N. Y.
Merrell-Soule Co.	Syracuse, N. Y.
Marschall, A.	Little Falls, N. Y.
Morris, J. M.	Liberty, N. Y.
Maine, G. G.	Lisbon Center, N. Y.
Mason, C. C.	Burke, N. Y.
Merritt, E. A.	Potsdam, N. Y.
McLoud & Ormsbee.	Utica, N. Y.

N

Norton, E. P.	Attica, N. Y.
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O

Oster, J. E. F.	Borodino, N. Y.
Otis, R. C.	Denmark, N. Y.
Owens, Jas.	Steuben, N. Y.
Odell, B. B., Jr.	Newburgh, N. Y.
Oliver, Arthur	Chateaugay, N. Y.
Overacker, A. W.	Gouverneur, N. Y.
Older, M. A.	Ellington, N. Y.
Older, Clyde	Kennedy, N. Y.
Oakes, Frank S.	Cattaraugus, N. Y.
Owens, Jas. H.	Chemung, N. Y.
Overton, F. C.	Adams, N. Y.

P

Partridge, O. T.	Ogdensburg, N. Y.
Patrick, W. C.	Sherman, N. Y.
Pease, Ira	Oswego, N. Y.
Peabody, F. H.	Ithaca, N. Y.
Peer, F. S.	Mt. Morris, N. Y.

Pervis, Robt.	Cortland, N. Y.
Powell, E. A.	Syracuse, N. Y.
Powell, Geo. T.	Ghent, N. Y.
Perrin, Walter R.	Gouverneur, N. Y.
Preston, E. J.	Amenia, N. Y.
Peck, W. H.	Syracuse, N. Y.
Polly, Lafayette	Burr's Mills, N. Y.
Petrie, S. W.	Buffalo, N. Y.
Peck, B. M.	Phillips Creek, N. Y.
Peckham, V. E.	Jamestown, N. Y.
Peck, Leon L.	South Canisteo, N. Y.
Pearson, R. A.	Ames, Iowa
Paddock, Ruth	Malone, N. Y.

R

Rees, H. A.	Lowville, N. Y.
Robinson, Sidney	Malone, N. Y.
Runyon, H. J.	New York, N. Y.
Richardson, H. W.	East Aurora, N. Y.
Richardson, S. B.	Lowville, N. Y.
Riggs, H. W.	Albany, N. Y.
Royce, C. H.	Ithaca, R. D., N. Y.
Roby, Dr. Joseph.	Rochester, N. Y.
Rutherford, T. F.	Madrid, N. Y.
Russell, C. T.	Munnsville, N. Y.
Royce, G. G.	Gouverneur, N. Y.
Roger, S. R.	Sidney Center, N. Y.
Ryder, Frank H.	Cobleskill, N. Y.
Rowley, E. F.	Kennedy, N. Y.
Rogers, W. A.	Watertown, N. Y.
Reed, J. W.	Gouverneur, R. D., N. Y.
Risley, J. M.	Rhinecliff, N. Y.
Rockwell, B. C.	Westville Center, N. Y.
Ross, M. E.	Avon, N. Y.
Reynolds, Thos.	Belmont Center, N. Y.
Rowley, C. Lynn.	Kennedy, N. Y.
Rosemary Creamery Co.	Adams, N. Y.

S

Sanger, W. C.	Sangerfield, N. Y.
Santee, E. M.	Cortland, N. Y.
Sackett, C. E.	Utica, N. Y.
Sears, Frank	Cortland, N. Y.
Schimmel, Albert.	Maspeth, N. Y. City, N. Y.
Schooley, V. W.	Warwick, N. Y.
Scoville, J. V. H.	New Hartford, N. Y.
Seymour, Jas. H.	New York, N. Y.
Sisson, G. W., Jr.	Potsdam, N. Y.
Shattuck, J. W.	Norwich, N. Y.
Shaw, Frank E.	Dunkirk, N. Y.

Sherman, Ira E.....	Sidney, N. Y.
Smith, Jasper	Binghamton, N. Y.
Stevens, W.	West Groton, N. Y.
Smead, C. D.....	Hector, N. Y.
Smith, Geo. A.....	Geneva, N. Y.
Still, C. B.....	Theresa, N. Y.
Sibley, F. L.....	Cuba, N. Y.
Sholes, C. E.....	Oswego, N. Y.
Stevens, Henry	Lacona, N. Y.
Seaman, Elizabeth C.....	2-6 Cliff Street, New York, N. Y.
Schlappi, J. F.....	Constableville, N. Y.
Stern, Louis	W. 23d St., New York, N. Y.
Smith, H. L.....	Norwich, N. Y.
Skaneateles Creamery Co.....	Skaneateles, N. Y.
Sanford, R. J.....	Potsdam, N. Y.
Smith, J. L.....	Warsaw, N. Y.
Steward, Guy	Stamford, N. Y.
Smith, Geo. A.....	Constableville, N. Y.
Shields, T. J.....	Malone, N. Y.
Santimore, J. D.....	Malone, N. Y.
Shaver, S. C.....	Syracuse, N. Y.
Spink, L. D.....	Attica, N. Y.
Smith, Jno. A.....	Oak Hill, N. Y.
Sturges, Russell	New York, N. Y.
Smith, Oliver & Son.....	Chateaugay, N. Y.

T

Tabor Pump Co.....	Buffalo, N. Y.
Thornton, Amasa	New York, N. Y.
Thatcher Mfg. Co.....	Elmira, N. Y.
Troy, H. C.....	Ithaca, N. Y.
Trout, A. K.....	Philadelphia, Pa.
Truax, Melville	Pope Mills, N. Y.
Truesdelle, E. H.....	Watertown, N. Y.
Ticknor, A. N.....	Penelope, N. Y.
Tiquin, Thos E.....	Sherburne, N. Y.

U

Urner, F. G.....	173 Chambers St., New York, N. Y.
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V

Van Slyke, Dr. L. L.....	Geneva, N. Y.
Van Wagenen, Jared, Jr.....	Lawyersville, N. Y.
Voorhees, W. H.....	Mill Paint, N. Y.
Van Alstyne, Edward	Kinderhook, N. Y.

W

Walker, C. R.....	Richville, N. Y.
Wager, Irving A.....	North Brookfield, N. Y.
Warsaw Salt Co.....	Warsaw, N. Y.

Ward, Gilbert E.....	Ravena, N. Y.
Wells, Geo. N.....	Elmira, N. Y.
Wheeler, G. D.....	Deposit, N. Y.
Wheeler, Chas. A.....	Deposit, N. Y.
Willey, E. B.....	Binghamton, N. Y.
Wickham, Chas. W.....	Mattituck, N. Y.
Wilcox, M. S.....	Jefferson, N. Y.
Wilson, Dr. Claude.....	Watertown, N. Y.
Wing, H. H.....	Ithaca, N. Y.
Witter, D. P.....	Berkshire, N. Y.
Winter, Harry	Albany, N. Y.
Widmer, O. R.	Wappingers Falls, N. Y.
Wood, Geo.	Woodville, N. Y.
Wood, Jas.	Mt. Kisco, N. Y.
Woodard, J. S.....	Lockport, N. Y.
Woodward, O. M.....	Rodman, N. Y.
Woodworth, C. E.....	Southwest Oswego, N. Y.
Wickwire, C. H.....	Cortland, N. Y.
Whitney, W. B.....	Sherman, N. Y.
Weber, A. M.....	Springville, N. Y.
Wakefield, C. B.....	Falconer, N. Y.
White, P. E.....	Denmark, N. Y.
Waterman, C. H.....	Avon, N. Y.
Ware, T. M.....	Meridale, N. Y.
Wright, C. B.....	Lisbon, N. Y.
Wentworth, Fay	Sun, N. Y.
Wightman, I. C.....	Norwich, N. Y.
Wood, R. H.....	Little Falls, N. Y.
Young, W. I.....	New York, N. Y.
Youngs, J. W.....	Oxford Depot, N. Y.
Young, W. G.....	Fillmore, N. Y.
Young, B. J.....	Hobart, N. Y.

LIFE MEMBERS WHO RESIDE OUT OF THE STATE

Adams, Cushing	Bellows Falls, Vt.
Anderson, Leroy	Berkeley, Cal.
Bennett, A. A.	St. Charles, Ill.
Dewey Brothers	Blanchester, Ohio
Edmunds, F. W.	Greeley, Neb.
Gill, Bion	
Kelsey, J. W.	Philadelphia, Pa.
Knight, C. C.	154 Lake St., Chicago, Ill.
Monrad, J. H.	Nearum, Denmark
New Way Motor Co.	Lansing, Mich.
Roberts, I. P.	Palo Alto, Cal.
Richardson, E. A.	Burlington, Vt.
Smith, William E.	Plainfield, N. J.
Ward, A. R.	Berkeley, Cal.
White, W. I.	Boston, Mass.
Wilbur, D. F.	Am. Consul, Kobe, Japan
Woodworth, E. B.	Chicago, Ill.

PAST PRESIDENTS OF THE ASSOCIATION AND YEARS OF THEIR SERVICE

*Harris Lewis	1877-1886
J. S. Shattuck	1887-1888
I. P. Roberts	1889
*W. H. Gilbert	1890
*Josiah Shull	1891
*Jesse Owens	1892
Frank Blanding	1893
E. S. Munson	1894
A. D. Baker	1895
*A. Chas. Thompson	1896
L. L. Van Slyke	1897
A. R. Eastman	1898
S. B. Richardson	1899
G. A. Smith	1900-1901
D. P. Witter	1902
H. E. Cook	1903
G. A. Smith	1904
V. C. Beebe	1905
*M. T. Morgan	1906
*W. W. Hall	1907
W. H. Jordan	1908
H. H. Wing	1909
J. D. Frederiksen	1910
I. L. Hunt	1911
E. H. Dollar	1912-1913

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Adams, D. G.....	59 Winans Ave., Newark, N. J.
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Alheim, Geo.	Buffalo, N. Y.
Austin, John	419 Cortland Ave., Syracuse, N. Y.

B.

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Bellinger, Albert	Sherman, N. Y.
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Bourke, Irving I.....	Ilion, N. Y.
Brigham, H. W.....	c/o Rochester Ice Cream Co., Rochester, N. Y.
Brigham, E. H.....	166 Broadway, New York, N. Y.
Brown, M.	c/o Colonial Salt Co., Cuba, N. Y.
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Boyle, Wm.	Box 425, Rome, N. Y.
Breed, R. S.....	Geneva, N. Y.
Buell, D. C.....	Morrisville, N. Y.
Bundy, Howard	Merridale, N. Y.

C.

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Carpenter, W. E.....	c/o The Vermont Farm Machine Co., Le Roy, N. Y.
Carter, W. E.....	Rutland, N. Y.
Carver, J. O.....	Verona, N. Y.
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Clute, E. R.....	Worth, N. Y.
Cogswell, L. L.....	Louck, N. Y.
Coughlin, John J.....	627 White Building, Buffalo, N. Y.
Corn Products Refining Co., J. R. Bordutha.....	Utica, N. Y.
Cowell, E. E.....	Jordan, N. Y.

1320 NEW YORK STATE DAIRYMEN'S ASSOCIATION

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 Clark, ArthurOrwell, N. Y.
 Cohn, Max F.....234 Potomac Ave., Buffalo, N. Y.

D.

Dana, W. E.....Avon, N. Y.
 Davis, HughBroad St., Albin, N. Y.
 Dennis, S. F.....c/o Syracuse Ice Cream Co., Syracuse, N. Y.
 Dickenson, W. S.....Messengerville, N. Y.
 Dietrich, Edward G.....c/o D. H. Gowing & Co., Syracuse, N. Y.
 Dona, R. L.....115 E. Beard St., Syracuse, N. Y.
 Duffy, C. B.....c/o De Laval Separator Co., Potsdam, N. Y.

E.

Egan, P.Marcellus, N. Y.
 Elwood, H. C.....c/o Colonial Salt Co., Buffalo, N. Y.
 Ensworth, C. R.....c/o Binghamton Ice Cream Co., Binghamton, N. Y.

F.

Farrington, H. F.....Lowville, N. Y.
 Finch, H. L.....Cohoes, N. Y.
 Ford, Burton B.....Red Creek, N. Y.
 Forward, E. E.....Redwood, N. Y.
 Foster, L.Theresa, N. Y.
 Frederickson, J. D. (Mr.).....Little Falls, N. Y.
 Friedlay, Jas. A. D. S.....Salisbury Mills, N. Y.

G.

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 Gibson, Jos.....105 Broadway, New York City, N. Y.
 Giles, W. N.....Skaneateles, N. Y.
 Gordan, John.....Wheat's Ice Cream Co., Buffalo, N. Y.
 Grant, E. J.....Jefferson county, Ellisburg, N. Y.
 Griffin, Mr. Jos.(Vinney & Co.), Syracuse, N. Y.
 Gundrum, D. H.....Dairymans Mfg. Co., Jersey City, N. Y.
 Guthrie, E. S.....Ithaca, N. Y.

H.

Hall, A. G.....Earlville, N. Y.
 Hall, W. E.....South Butler, N. Y.
 Hansner, C. W.....Odessa, N. Y.
 Hannaho, J. M.....Canton, N. Y.
 Hargrave, A. B.....Heuvelton, N. Y.
 Harris, J. J.(The J. B. Ford Co.), Wyandotte, Mich.
 Hayes, G. L.....(The Torsion Balance Co.), New York City, N. Y.
 Hayes, H. J.....(Thatcher Mfg. Co.), Elmira, N. Y.
 Hall, S. A.....Watertown, N. Y.
 Hern, J. F.....White Plains, N. Y.

Hess, Chas. E., & Son.....	R. F. D. 2, Phoenix, N. Y.
Hes, C. C.....	Davis Milk Machinery Co., N. Chicago, Ill.
Hoefler, Alex. G.....	294 Connecticut St., Buffalo, N. Y.
Holford, F. D.....	Albany, N. Y.
Hodge, Burton A.....	76 Arlington Ave., Revere, Mass.
Hotaling, W. H.....	Apulia, N. Y.
Houde, W. L.....	Franklinville, N. Y.
Houghton, M.	Camden, N. Y.
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Hovey, W. W.....	Cooperstown, N. Y.
Hull, H. N.....	Syracuse, N. Y.
Hutchins, E. A.....	Liverpool, N. Y.

I.

International Salt Co.....	New York City, N. Y.
----------------------------	----------------------

J.

Jackson, J. J.....	Fairhaven, Vt.
Johnson (Mr.).....	Rutland, Vt.
Jones, Thomas (Mr.).....	Marcellus Falls, N. Y.
Jordan, Oliver S.....	29 Broadway, New York City, N. Y.
Jordan, W. H.....	Geneva, N. Y.

K.

Kelly, J. H.....	Lysander, N. Y.
Kimbel, H. C.....	Fayetteville, N. Y.
Kendell, I. H.....	Potsdam, N. Y.
Koville, J. V.....	Utica, N. Y.

L.

Lagerquist, E.....	518 Washington Ave., Brooklyn, N. Y.
Lange, H. C.....	100 Hudson St., New York City, N. Y.
Lee, C. E.....	Madison, Wis.
Lindley, P. P.....	Albany, N. Y.
Lawrence, Chas. C.....	Canton, Ohio

M.

Manning, R. A.....	Rutland, Vt.
Marble, C. E.....	Kenwood, N. Y.
McCauley, F. H.....	New York City, N. Y.
McLoud, W.	Utica, N. Y.
Merriman, C. N.....	Weedsport, N. Y.
Miller, H. H.....	Canton, Ohio
Milnes, J. N.....	Kenwood, N. Y.
Mills, J. A.....	337 Genesee St., Utica, N. Y.
Munson, R.	Oneida, N. Y.
Murray, James J.....	219 Bird Ave., Buffalo, N. Y.
Murray, P. W.....	29 Broadway, New York City, N. Y.
Musk, Arthur G.....	Treadwell, N. Y.

N.

Nicholas, H. R.....	R. F. D. 5, Syracuse, N. Y.
Nivling, S. T.....	Rochester, N. Y.
North, C. E.....	30 Church St., New York City, N. Y.
Nye, L. R.....	16 Chestnut St., Potsdam, N. Y.

O.

O'Brien, J. F.....	New York City, N. Y.
Owens, N.	Freedom, N. Y.
Oliver, Clifford.....	Whitney Point, N. Y.

P.

Partman, C. C.....	Clyde, N. Y.
Patchen, F. C.....	Rome, N. Y.
Peach, A. F.....	315 S. Hamilton St., Watertown, N. Y.
Perkins, S. E.....	Boston, Mass.
Philpot, H. J. (Mr.).....	Canton, N. Y.
Pierce, C. D.....	Binghamton, N. Y.
Pierson, Herbert A.....	Syracuse, N. Y.
Piez, R. K.....	Oswego, N. Y.
Poole, E.	Alfred, N. Y.
Powell, J. H.....	Skaneateles, N. Y.

R.

Ranney, F. A.....	Locke, N. Y.
Raynor, A. L.....	(R. D. 3), Manlius, N. Y.
Redfield, F. P.....	Adams, N. Y.
Remington, G. R.....	165 Broadway, New York City, N. Y.
Richards, W. N.....	Delevan, N. Y.
Ris, F. B.....	530 Elliott Sq., Buffalo, N. Y.
Rives, H. A.....	Lowville, N. Y.
Roberts, H. A.....	615 Aurora St., Ithaca, N. Y.
Rutherford, G. E.....	Hammond, N. Y.
Ruttenber, A. J.....	800 D. S. Morgan Building, Buffalo, N. Y.
Milton, Sanford.....	(R. D. 1), Mannsville, N. Y.

S.

Schebble, C.....	109 Catherine St., Ithaca, N. Y.
Shields, E. E.....	Akron, N. Y.
Schermerhorn, Fred.....	Brier Hill, N. Y.
Seaman, C.....	Massena Springs, N. Y.
Sellew, R. P.....	7 Merchants' Row, Boston, Mass.
Schuetz, Earnest F.....	Naples, N. Y.
Scott, E. C.....	Solvay Process Co., Solvay, N. Y.
Sears, F. H.....	Cortland, N. Y.
Sheldon, R. E.....	Weedsport, N. Y.
Simpson, G. L.....	1940 Salina St., Syracuse, N. Y.
Smith, G. A.....	Geneva, N. Y.
Smith, Harvey (Mr.).....	202 W. Water St.

Smith, J. C.....	197 Jamaica Ave., Brooklyn, N. Y.
Smith, Wing R.....	Syracuse, N. Y.
Smith, W. J.....	Shed, N. Y.
Smithson, S. B.....	2006 Indiana Ave., Chicago, Ill.
Somes, L. N.....	Jordan, N. Y.
Soule, Robert G.....	Syracuse, N. Y.
Spaulding, B. C.....	Potsdam, N. Y.
Spink, L. D.....	Attica, N. Y.
Stapling, T. H.....	Mannsville, N. Y.
Steacy, J. J.....	Redwood, N. Y.
Stevens, E. J.....	Worcester, Mass.
Stoddard, J. H. (Mr.).....	Syracuse, N. Y.
Stores, William.....	1347 N. Illinois St., Indianapolis, Ind.
Stuart, S. L.....	Newburgh, N. Y.
Sutton, E. C.....	235 Elm St., Buffalo, N. Y.
Sweeting, Jonathan E.....	480 Maize St., Rochester, N. Y.

T.

Tait, James.....	Springfield, Mass.
Taylor, W. D.....	Camden, N. Y.
Taylor, B. E.....	105 E. 22d St., New York City, N. Y.
Terhune, W. C.....	165 Broadway, New York City, N. Y.
Thomas, N. M.....	Schenectady, N. Y.
Thomas, E. J. (Mr.).....	700 Grand View Ave., McKeesport, Pa.
Thorpe, Wm.....	Marcellus Falls, N. Y.
Tuck, C. H.....	Ithaca, N. Y.

U.

Udell, B. R.....	West Monroe, N. Y.
------------------	--------------------

V.

Vale, F. E.....	68 State St., Albany, N. Y.
Vale, F. E.....	Wyandotte, Mich.
Van Allen, J.....	Pavilion, N. Y.
Van Cise, R. E.....	108 Hudson St., New York City, N. Y.
Van Horn, N.....	North Bay, N. Y.

W.

Waters, Mr.....	R. F. D., Corey, Pa.
Webster, S. O.	214 Dryden road, Ithaca, N. Y.
West, J. W.....	131 Seminary Ave., Binghamton, N. Y.
Wiedrich, H. W.....	Pittsburgh, Pa.
Wilmont, W. D.....	Delevan, N. Y.
Williams, E. C.....	Richmond Hill, N. Y.
Wills, J. G.....	Albany, N. Y.
Wiltsee, C. A.....	71 Broadway, New York City, N. Y.
Winters, Harry.....	Albany, N. Y.
Wright, Alfred.....	Rome, N. Y.

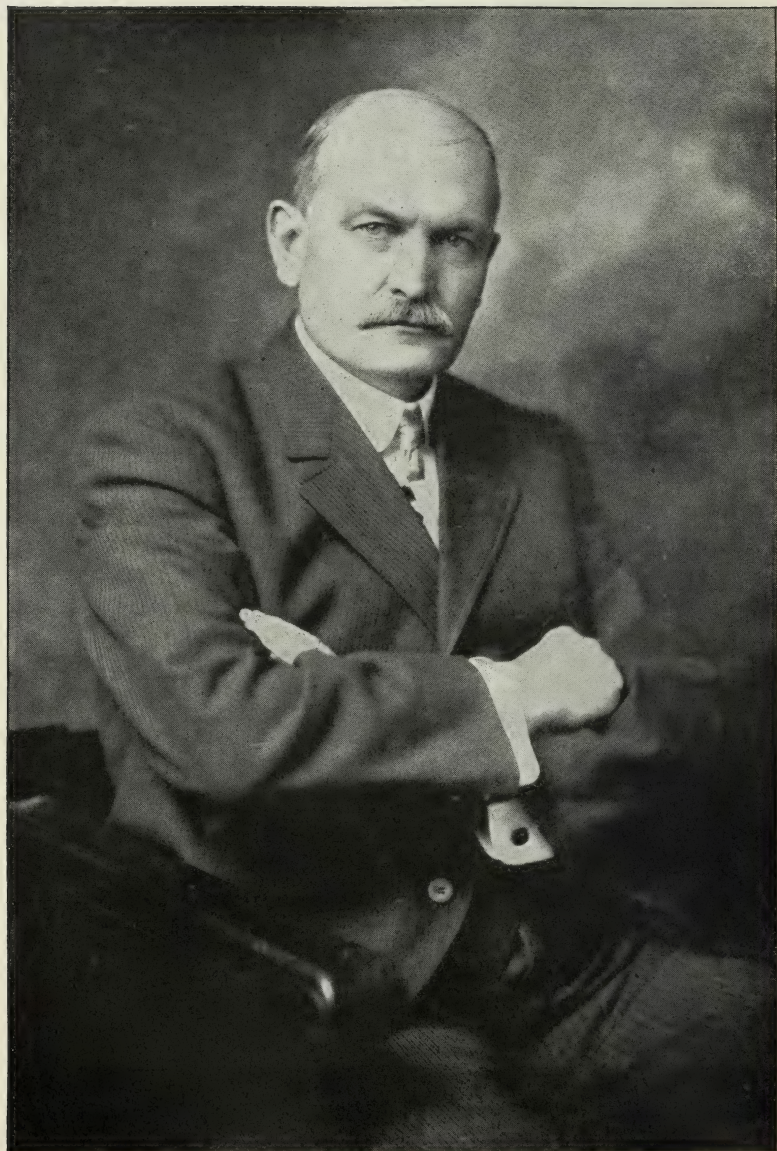


FIG. 220.— CALVIN J. HUSON

STATE OF NEW YORK
DEPARTMENT OF AGRICULTURE

CALVIN J. HUSON, Commissioner

Bulletin 59

PROCEEDINGS

OF THE

ANNUAL MEETING

OF THE

New York State Breeders' Association

HELD AT ROCHESTER, N. Y.

FEBRUARY 4 AND 5, 1914

OFFICERS, 1914

President.....	Calvin J. Huson, Penn Yan
Vice-President.....	Fred W. Sessions, Utica
Secretary.....	Albert E. Brown, Batavia
Treasurer.....	Wing R. Smith, Syracuse

DIRECTORS

Term expires 1915	Term expires 1916	Term expires 1917
Prof. H. H. Wing	E. W. Mosher	H. B. Harpending
Dr. C. D. Smead	E. A. Powell	G. W. Sisson, Jr.
H. B. Winters	E. S. Akin	W. G. Markham
Geo. A. Smith	H. L. Wardwell	R. T. Wainwright

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FIRST SESSION

WEDNESDAY MORNING, FEBRUARY 4

Meeting called to order at 11 A. M., President Huson in the chair.

In presenting Honorable Hiram H. Edgerton, Mayor of Rochester, the President said:

"I am very glad indeed to welcome so many members of the Association here at this first morning session.

"We are highly honored this morning by the personal presence of His Honor, Mayor Edgerton, of the city of Rochester, and it is with very great pleasure we now present him to you."

ADDRESS OF WELCOME

HIRAM H. EDGERTON, MAYOR OF ROCHESTER

Mr. President and Members of the State Breeders' Association: It has been my privilege on a great many occasions during the past three years to extend the greetings of my fellow citizens at meetings of this kind — never before, I think, to your body nor any body of exactly this character. I am here this morning because I am interested in what interests you and I want to show you that, and because it was impossible for me to refuse the request of my good friend Markham and the others who came to see me and ask me to come here.

I think it is very appropriate and proper that you should have selected Rochester for your convention. Rochester is a very beautiful city, and we have here a very high grade of citizenship — much better than in most cities of its kind. Our manufactories are such, and so diversified, that they require a very large number of skilled workmen, and there are few residents of Rochester of a higher order of humanity. We can stand for improvement — every city can. For that reason we are glad to have this fine gathering of New York State breeders with us. We want to increase the quality and the quantity of our citizenship, and if we had any keys to the town I should give them to you, but we have not. Our city is wide open; you will find a welcome

wherever you go, and I trust that while you are here you will find that you have profited by the visit — that you will not only have a pleasant but a prosperous convention; that you will carry away with you pleasant recollections of Rochester and the vicinity, and that you will want to come again.

I know that you do not want me to deliver a speech, because I know very little of the business which brings you here; but I want to extend the heartiest welcome, and hand, and invite you all to come again.

RESPONSE TO ADDRESS OF WELCOME

CALVIN J. HUSON

MAYOR EDGERTON: I beg to assure you that we all appreciate the honor of your personal presence here this morning. It has been quite the custom at our meetings in the past, to have the mayor represented by proxy, but those who know something of you appreciate the fact that you are not in the habit of being represented by proxy.

We are very glad indeed to meet in this beautiful, hospitable city. Rochester has the reputation (and those of us who know something about it know that it is deserved) of being the most beautiful and the most progressive city of its size in all America. It is unique in having a mayor whose tenure of office seems to be for life — though to comply with the provisions of the law, they go through the form of an election up here occasionally; but it is simply a form, and Mayor Edgerton goes on from term to term, and we are all glad that it is so.

I am sure that our stay here will be both pleasant and profitable. Rochester has an unrivaled reputation as a convention city, and as a meeting place for organizations such as this. There is, however, something more in this gathering than a simple reunion of men of kindred interests — of men having a common purpose. While the friendships and acquaintances that are formed in organizations of this kind are valuable in themselves, still this association has, I hope, a wider scope and a deeper purpose than the mere social side of these meetings, that are so pleasant and enjoyable to all of us. We are banded to-

gether for the purpose of promoting the animal husbandry interests of the great state of New York. It is an interest in which all the people of the state are most vitally concerned; and that it is not what it ought to be, we all appreciate, understand and recognize. We are here for the purpose of devising some plan, or of mapping out some policy, that will tend to promote that interest as a whole and the individual interest of those constituent members of the organization.

Last year, in talking to you informally as I am this morning, I gave some facts which had recently been disclosed by the publication of the result of the last Federal Census in regard to the situation of the animal husbandry interests of the state. I think it will not be amiss if I should repeat some of those figures here this morning at this initial meeting of our organization, so that we may have clearly in mind, as we take up the various topics we are to discuss, the situation in regard to this industry as it exists in our state.

The Federal Census tells us that in the year 1890 (a little more than 20 years ago) there were 1,440,000 dairy cows in the state. In the year 1900 (10 years later) that number had increased to 1,501,000, an increase, in the ten years, of 61,000 only. In 1910 (the last authentic figures we have) there appeared to be 1,509,000, although two sets of figures have been given out in regard to that; but they varied by a few thousand, showing an increase during the period of ten years of only 8,000, or less than a thousand per year. The same authority discloses the fact that in the year 1900 the value of the dairy cows was \$48,000,000, but in 1910 they were worth \$69,000,000, an increase in ten years of \$21,000,000, although there was an increase of only 8,000 in number.

Turning to the swine industry, we find that in 1890 there were 843,000 pigs, old and young, in the state. In 1900 there were only 678,000, a decrease in the ten years of 165,000. In 1910 (10 years later) there was about the same number as 1900. The value, however, in 1900 appears to have been \$3,800,000, and in 1910, \$5,900,000. Although there was no susceptible increase in number during the ten-year period, there was an increase in value of \$2,100,000.

In 1900 there were 1,745,000 sheep in the state of New York. In 1910 that number had dwindled down to 930,000, a decrease in the ten years of 815,000, or nearly one-half. In 1900 these 1,745,000 sheep were valued at \$5,920,000, while in 1910 the 930,000, or half the number, were valued at \$4,839,000, a decrease of only a million in value, although there was a decrease of 815,000 in number.

The figures in regard to our horse industry are even less attractive. In 1890 there were 664,000 horses in the State of New York. In 1900 (10 years later) there were 628,000, a decrease in the ten years of 36,000. In 1910 there were only 591,000, a further decrease in that ten-year period of 37,000. However, in 1900 the total value is given as \$48,000,000, while in 1910 the value is stated to be \$80,000,000; and although the number had decreased 37,000 in the ten years, the value had increased \$32,000,000.

In 1900 there were in the state of New York, in round numbers, 50,000 colts under two years of age — the foals of two years. In 1910 there were 28,000 colts under two years of age; a decrease in the ten years of 22,000.

From these figures we have this result: There are seven dairy cows to each farm in the state; three pigs; four sheep; two and one-half horses of all ages, including colts. There is only one colt under two years of age to each ten farms.

There is no branch of agriculture, it seems to me, that needs the intelligent attention of those engaged in agriculture as does animal husbandry. If we are to continue the fertility of our lands; if we are to pass our lands down to the succeeding generation with their fertility unimpaired, we must give greater attention to animal husbandry. There is no method, I believe, by which our run-down farms can be restored more quickly and more economically than giving a wider place to the domestic animal on the farm. This can be stated with more than ordinary force at the present time, for there never was a time when the animal husbandry interest presented a more attractive business proposition than it does today.

I referred to the fact a moment ago that we have in the state approximately a million and a half dairy cows. We lead the

entire country in the class and character of our dairy animals. The demand for the dairy cow comes from every state in the Union, and from countries outside of our own dominion. The production of the high-class dairy animal is not equal to the demand, and our breeders are not able to supply our needs. Purchasers are coming in greater and greater numbers from the states of the West and the Northwest, where the dairy interest is being developed, and they are buying, at prices fixed by our own producers, the best of our dairy herds. During the year that has just passed thousands and tens of thousands of our most promising dairy animals have been shipped out of the state.

No branch of animal husbandry can be more profitably extended than breeding the dairy cow here in the state of New York, where we have the reputation, well-deserved, of producing the best dairy cow that lives. Notwithstanding this fact, much is to be desired in a considerable number of the million and a half dairy animals in the state of New York. There can be no reasonable doubt but that a large number (too large a number) are not of such a type or class as to yield to the owner the degree of profit that is his due. This and other organizations can do very much toward educating the indifferent man as to the importance and the financial profit in increasing the character and productiveness of the New York State dairy cow.

I believe there never was a time when the future of the swine industry was as promising in the state of New York as it is today. Our breeders probably will never undertake to grow pork on the same scale of magnitude as is practiced in the states of the Middle West, known as the Corn Belt; but it is my opinion that there is a much wider sphere for the lowly and despised pig on the farms of the state of New York. We have the best market in the world for pork and pork products, as well as for mutton and beef products. We have means of transportation, and we have nearness to market, as well as being assured of a price in advance of what the western breeder is able to get in the markets of Chicago or the West. Yet here in New York State, with its 220,000 farms, our farmers are not raising sufficient pork in an entire year to supply the people of our own state for a single month. We have approximately ten million people in the state of

New York to feed; their supplies are coming very largely from outside the state, and it seems to me that those of us who are engaged in animal husbandry, and who believe in animal husbandry, should do what we can to extend this great industry for the profit that is in it, and for the purpose of supplying a larger portion of the meat products to the people of our own state. More than a million dollars is being paid to the farmers of this country every day in the year for live pigs, and the farmers of the state of New York are getting practically none of it. It is going to the great swine producers of the West and Middle West. The prosperity of that great section, where land values have gone so high, has not been entirely because they have been able to raise such great crops of corn year after year; but is due, in a considerable measure at least, to the fact that they are marketing a large share of their corn crop in the form of pork as the finished product. Yet, according to the last census, the state of New York is yielding more corn to the acre than either Iowa or Illinois, and corn can be grown as successfully in New York as in any state of the Union. There is a great future for the pork industry right here in our state.

The fact that our sheep have decreased approximately from two million to one million in a period of ten years is a matter of considerable concern. That number was not divided in half during that ten-year period by reason of any agitation concerning the tariff, so we have to look for other causes. But, that in 1900 we had approximately 2,000,000 sheep on New York State farms, and that number had decreased to less than 900,000 in 1910, is a fact that is worthy of very serious consideration. There are thousands of acres in the great state of New York that ought to furnish pasturage for sheep and other domestic animals—lands that perhaps never ought to have been denuded of their forest growth; lands on which our ancestors tried, and perhaps some of our present generation are trying, to drag out their lives to grow cultivated crops, and that are particularly adapted to sheep husbandry.

I know that there are difficulties in the way of raising sheep in the state of New York. We are liable to point out first, and of the most importance, the danger of the ravages of dogs. It is a

menace, and those of us who have had our flocks worried or destroyed by dogs will appreciate the loss there is from this source. There ought to be adopted (and I believe can be, if organizations like this should present it to the Legislature and urge the necessity of it) such legislative enactment as will lessen, if not wholly obviate, this danger. One of the other causes of the depletion of our flocks, has come from the fact that but few farms at the present day are fenced so as to protect sheep.

The consumption of mutton is increasing very rapidly; but we in the state of New York do not produce enough to be considered when it comes to the question of mutton production. Yet we have some of the best flocks that can be found anywhere in this country, owned by men who have gained great reputations for producing the highest type of sheep of the various breeds.

I wish to say a word also in regard to the horse. I believe there is a noticeable increase in the number of young foals coming on; yet those who have made an examination into the subject tell us that we are purchasing from outside of the state fully 80,000 horses a year, which we are wearing out on our farms and on our city streets every year: We are paying at least \$250 each for these animals, making the enormous drain on our agricultural resources of \$20,000,000 a year for horse flesh. I know in some quarters the impression prevails that we are not situated where we can undertake the breeding of our own horses. The belief is that in order to raise colts we must have expensive buildings and an expensive equipment; yet the horses that we are buying abroad — those that come from Belgium — come from farms that are no larger than our gardens, since the average farm in Belgium from which these great drafters come average only about three acres in extent. The farms of France from which our Percherons come average, I believe, about ten acres in extent. And it is on these small farms of three, five and ten acres that the great bulk of horses of Belgium and France are raised.

One of the serious drawbacks to horse breeding in the state of New York is the fact that we need a sensible law in regard to the stallion, or sire. Under the direction of the Legislature an

examination was made last year of the registrations in the various county clerks' offices of the state, which disclosed the fact that only one in seven of the stallions that are standing for public service in the state of New York is pure-breed — a most remarkable showing.

I do not know very much about the horse; but if there is any reason why the farmers of this state can not undertake to raise the horses which they are using on their farms, and which are required for the city traffic, I would like to hear it discussed here today. We gave particular attention to that branch of the breeding at our meeting last year, and, I believe, obtained some good results. The effect of that discussion tended to stimulate interest in this great subject. There is no reason why we can not have enacted a reasonable law that will protect the owners of the present generation of stallions, and at the same time gradually eliminate the scrub and mongrel from our breeding operations. This is a subject worthy of the serious consideration of this body, and I hope that we may have some definite expressions on it.

I have talked to you in regard to the general situation of these interests as I see them throughout the state. I thought perhaps it was not amiss to make these general observations at the outset, in order that we might have a clear conception of the situation we are to consider. This body of men represents the great breeding interests of the state. Perhaps an equal number of men could not be found in the state as interested and as influential in the communities in which they live. We ought to take up these questions with some seriousness; adopt some policy, and pass some resolution that will proclaim the policy which the breeders of the state feel ought to be adopted in furtherance of this industry. You are all interested in those great subjects that pertain to the function which the state is attempting to perform in reference to the health of our domestic animals. You have a right, and it is your duty, to help frame the policy which the state should pursue in those respects. The policy we are attempting to carry out is the one that we believe will best promote the interests you represent, and you, as representatives of those interests, are in a better position, perhaps, than almost anyone else to define what

ought to be done and what will best tend to promote this great industry.

At considerable pains the committee charged with the preparation of this meeting has presented a program which we hope will meet the situation and merit your approval. I trust that all the speakers on the program will be present at the time they are stated to appear, and that we will hear from them. As you have observed, there is to be a banquet this evening at 7 o'clock, to which all the members of the association and their friends are cordially invited. The tickets for the banquet have been placed at \$1.50, which I think, does not represent the cost to the association. We may be assured of a feast, followed by some addresses that will interest you all. Colonel Markham and Mr. Brown have the tickets, and we would like to know as early as possible how many to provide for at the banquet.

The treasurer has suggested that I announce to you that he is at his post, and that the dues, which are the nominal sum of \$1, are payable. To those here this morning who are not now members of the association, we desire to extend a cordial invitation to unite with us. There is no formality about it; if you are interested, directly or indirectly, in the animal husbandry interests of the state, you are eligible to membership, and may become a member by enrolling your name with the treasurer and paying the fee of \$1.

MR. SESSIONS: Mr. President, if the motion is in order, I should like to move that the President appoint a committee of five on resolutions, and that all resolutions presented at this convention be referred to such committee.

MR. HUSON: You have heard the motion of Mr. Sessions that a committee of five be appointed by the chair, to whom shall be referred all resolutions, and that such committee shall report resolutions for adoption by the meeting before its final adjournment. (The question was put in the usual manner and the motion declared carried.)

We will now have the report of the treasurer. I will announce the committee in a moment.

(Mr. Wing R. Smith, Treasurer, read his report.)

MR. HUSON: What will you do with the report of the treasurer? It has been customary in the past to appoint — and I think our by-laws provide for the appointment of—an auditing committee to audit the account of the treasurer and report. If there will be no objection I shall assume to name such a committee, as has been the custom in the past. I will name Mr. Gail, of Erie, and Mr. Hinchey, of Rochester.

The committee on resolutions will consist of Professor Wing, as Chairman; Mr. Sessions, Mr. Powell, Mr. Duncan and Mr. Smallwood.

Is there any further business that we can transact this morning? According to the program, we are to meet at 1.30, and I hope you will be promptly on hand at that time, because we have three numbers on the program, all of which will be worthy of your best attention.

Colonel Markham, who has charge of the local arrangements, calls my attention again to the banquet. It is important that we should know the number that will be in attendance as soon as possible, as the hotel people are very anxious, necessarily, of knowing how many they must provide for.

Is there anything else at this time? You will observe on the program that tomorrow morning, from 9 to 11 o'clock, has been set apart for the meetings of the affiliated societies. In preparing the program it was thought best to arrange it so that the meetings of these societies would not interfere with the general meeting of this organization, and I hope that all those societies can meet at that time and conclude their meetings by 11 o'clock, so that they can all be present when we get together promptly at 11 o'clock tomorrow morning. There are a number of rooms right along the hall outside of this room that can be assigned to those meetings, and anyone desiring a room can take it up with the secretary, who will direct them where they may meet.

If there is no further business we will now stand adjourned until 1.30 this afternoon, promptly, in this room.

Meeting adjourned until 1.30 P. M.

SECOND SESSION

WEDNESDAY AFTERNOON, FEBRUARY 4

Meeting called to order at 1.30 P. M.

MR. HUSON: The first address on the program, you will observe, is by H. H. Wing, Professor of Animal Husbandry of the State College of Agriculture, who will speak on "The Present and Prospective Status of the Pure Bred."

THE PRESENT AND PROSPECTIVE STATUS OF THE PURE BRED

PROFESSOR H. H. WING, ITHACA, N. Y.

Mr. President, and Members of the New York State Breeders' Association: It has been my good fortune two or three times in the last few months to follow the Commissioner of Agriculture. It has been good fortune in one respect and perhaps in others it has not, because it is a pretty hard one. But the good part has been that the Commissioner has always given expression to some thought that could be taken up and amplified. I do not propose to attempt to amplify the Commissioner's excellent speech of this morning, but I do want to say over again a phrase he used that struck me as very significant. I can not quite quote it, but it was something in respect to the live stock industry demanding the intelligent interest of the common farmer. If those few words are not good words to think about and mull over in our minds, to help us to do our part toward awakening this intelligent interest of the common farmer, I do not know where we will find four or five words that are better calculated for this purpose. I want to try to impress upon you — upon us all — our duty in this respect. We as representative breeders, or you as representatives breeders of the state are responsible for arousing this intelligent interest of the common farmer.

Perhaps we do not always remember what a modern business the breeding of pure-bred live stock is. When we recall that up to the time that the breeders of the English thoroughbred found it advisable to keep pedigrees of their animals, no attempt at improvement through the history of the lineage of the ancestors had been made. You probably will recall that the first volume of the

general stud book was published only a little more than a hundred years ago, and following that the first book of Shorthorns was not published until 1820, and those were practically the only two herd or stud books until about 1850. We hear about animals that have been kept pure hundreds of years ago, and about those mythical Arab histories and all of that. That is all traditional — so largely traditional that we do not make practical use of it. Of the records of which we do make practical use, very few go back of seventy-five years ago. When we see how pedigree registers have multiplied and extended, and the great usefulness they have placed, particularly in England and in this country, we are impressed with their value in having had the effect that they have had in so short a time.

It is significant in connection with the often-expressed idea that pretty soon there will be so many pure-bred animals that there will be no market for them. You know in every community and in every sort of business, particularly in every sort of agricultural business, there is a certain percentage of timid persons who are always afraid of over-production. We are getting over that in respect to beef, eggs and some things of that sort, and we do not hear so much about the danger of over-production. We do run across it, however, in respect to pure-bred animals. Why should we not keep ourselves in even a closer aristocracy than we do? I believe that we need not be any more alarmed about this matter of over-production of pure-bred animals than we need be alarmed about the prospective over-production of beef or eggs in the immediate future. As near as it can be determined (and here again the Commissioner has helped us by the splendid list of breeders he has published), the pure-bred population does not exceed 5 per cent. (it will come very much nearer 2 per cent.) of the total animal population. When only two animals in a hundred are pure-bred, we can produce pure-bred animals as fast as we can breed them, without very much danger of over-production, in our lifetime at least. What may happen to our children need not concern us in this respect. I think that no man here present need expect to lack a market for all the good pure-bred animals he can produce in his lifetime. If this is so, then so long as this condition does prevail, it is our business, as breeders of pure-bred animals, to stimulate it in every possible way.

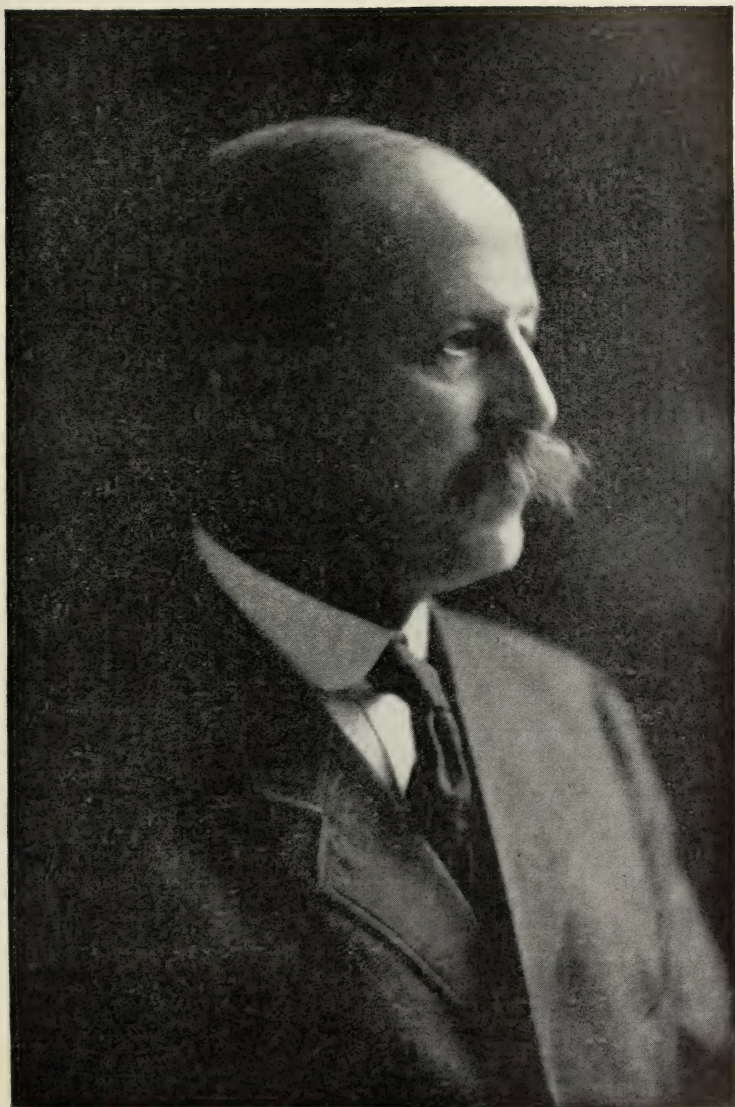


FIG. 221.—PROFESSOR H. H. WING

The business of breeding pure-bred animals is a modern one — a much more modern one, perhaps, than we would think if we do not pause to consider. We hear about men who have been breeders for thirty, forty, fifty years. We see men among us whose heads are silver and who have been breeders practically all their lives, but when we come to analyze it a little further we will find that most of us are comparatively new in the business.

From 2 to 5 per cent. of the total population is in pure-bred animals. What does this mean in respect to the progress that has been made and is being made along this line? Just as a matter of curiosity, I took from our herd-book shelves the statistics from four different leading breeds, and find this: The American Jersey Cattle Club was established in 1868. They have recorded up to the present time (the last published volume), in round numbers, 250,000 cows. One hundred and twenty-five thousand, or one-half of that number of cows, had been recorded since 1898. In the first thirty years of the existence of the American Jersey Cattle Club they recorded no more animals than have been recorded in the last fifteen. The American Shorthorn herd book was established about 1840. Their cows, as you know, were not numbered for years and years, and so we have to take the figures on the bull records. They have recorded about 330,000 bulls. Half of them, or 165,000, have been recorded since 1901. The first sixty years of the American Shorthorn herd book did not see so many animals recorded as the last twelve. The same thing is practically true of the Hereford. The Hereford was not established so soon — not until 1880. They have recorded 325,000 animals altogether. Half of them have been recorded since 1904 — in the last ten years as many as in the thirty years previous. The most remarkable of all is the Holstein-Friesian herd book. The present one was the outgrowth of an older book that was first established in 1870. They have recorded about 205,000 cows; 105,000 have been recorded since 1908. In the last six years as many were recorded as in the previous thirty-five or thirty-six.

They are not a drop in the bucket. You know as well as I do that the market for pure-bred cattle has never been better than in the last five or ten years. Is it not our duty, along

this line, to boom the pure-bred animals? They are filling a place, to say nothing about production. Do not take that part of it at all; simply look at it in its business aspect. More animals have been produced in the last few years than were ever produced before. The market is better than it has been. The public is just beginning to appreciate it. It looks as though, if organizations of this sort had any business at all, this was just their business — to boom, to stimulate the business in every way, and particularly through the intelligent interest of the common farmer.

There are some things we should bear in mind that have to do with the other side of the question. Are there any dangers or pitfalls that we are likely to encounter? That brings us up to a consideration of the present status of the pure-bred animal, particularly as it is looked at by the man who is an outsider — who, up to this time, has ever had direct practical acquaintance with a pure-bred animal. Since only a small proportion of the total population is pure-bred, and as the Commissioner very well told you this morning, the condition of the common live stock of the country is far from being as good as it should be, we are teaching — we have been teaching ever since I have known anything about this subject — the improvement of the common stock through the grading-up process. That is undoubtedly the most useful factor that can be employed in bringing up the condition of the common stock of the country. We know it has been employed with marked success in a great many instances. We know men have taken common females of almost any sort of live stock, and by mating them with pure-bred males of any particular breed they have developed herds and individuals that rival in productive capacity, and in efficiency, any pure-bred animal. We know further, that after four or five generations of animals in herds bred carefully in this way, they not only rival the pure-bred animals in production and in efficiency, but they rival them also in breeding power. I can show you grade animals that transmit their characteristics almost, if not quite so certain as the mass of pure-bred animals. For we must admit that among our pure-bred animals there is a certain proportion that fail to transmit their qualities as uniformly as we should like, and we must use a weeding-out process there as in all other phases

of live-stock breeding. These things being so and even though these instances are scattered here and there through the whole country they have their effect, you undoubtedly, as pure-bred breeders, are met with this statement, "Why are not grade animals just as good for me as any pure-bred animal? I can get a grade animal and can breed up my own herd at very much less expense." We are forced to admit that there is an amount of truth in the proposition. So unless we can successfully meet it, we are at a disadvantage when such arguments are presented to us.

There is no question in my mind that the distinction between a pure-bred animal and a high-grade animal at the present time is an arbitrary one. We say that no animal can be recorded whose parents are not already of record. That is true of every herd book and flock book in the United States at the present time, with a single possible exception. This being so, the animals that are within the herd book registration form an aristocracy, and they form an aristocracy into which there is absolutely no breaking whatever. We hear constantly about the decadence of aristocracies as they exist in European countries. We are proud that here in America there is no such aristocracy — that every man is as good as every other man when he proves himself so by his works. We say that while, so far as man is concerned, he may make himself as good as it is possible for him to do, still when it comes to domestic animals we must always keep within this aristocracy. I am not saying that this has not been the wise course for American breeders to pursue; I think that it has been. It will be the wise course for breeders to pursue in the future. But I still want to call your attention to the fact that it is, after all, an aristocracy within which there is no possibility of breaking, and in which there is always the possibility of decadence, just the same as decadence has occurred in aristocracies among mankind as we have witnessed in the Old World.

Where did this aristocracy of animals have its origin? It had its origin in a common mass. There were times when the ancestors of our pure-bred animals in every case came from a mass of common stock, from which there had been secured a certain proportion of improved animals, in just exactly the same way that the common farmer produces a good herd by grading out com-

mon stock. We have no reason to believe that the factors that gave rise to the origin of the Shorthorn cattle in northeastern England are less operative today than they were one hundred and twenty-five years ago. We have no reason to believe that it is not within the possibility of any one of you men to do just what Charles Colling, Robert Colling and Thomas Bates did then. We do not believe that those old Englishmen (giving them credit for all the natural ability and capacity that they had) had any powers you men have not, and it is perfectly possible for you to do with any class of domestic animals just exactly what they did; that is, form a useful breed from the common materials at your command. It is a possibility; whether it is a possibility worth while attempting to carry out at this time I do not wish to discuss, and I mention it simply to call your attention to the fact that it does exist and that we must always remember, in respect to any one of our breeds, that we have built up into a close corporation or an aristocracy, just where it came from and just what it means.

What about the future of the pure-bred animal? It seems to me, if I read the history of the last fifteen or twenty years right, that the pure-bred animal of the future is going to be measured, not entirely by its pedigree, not largely by the possession of certain characteristics (some of which may be useful, some of which are merely ornamental, and some of which are not even ornamental), but the pure-bred animal of the future is going to be measured more and more by its efficiency; its efficiency as a machine for doing the work that is demanded of it — the production of wool, flesh, butter fat, or what not.

Without disparaging any breed or any class of animals, it seems to me that the breeders of dairy cattle and of trotting horses have shown to their fellow breeders that measuring an animal by its efficiency is a great means of determining the progress of breeding. If you will look back, I think you will agree with me that no breeds have improved faster in general quality; that no breeds have improved to a greater extent in certainty of transmission, than those breeds that have been measured by records of production — the race horse on the track and the dairy cow at the pail. Until the breeders of dairy cattle took up the matter of actual production as a measure of quality of their animals, they, to a con-

siderable extent, were marking time. I do not mean to say that other breeds have not improved in general quality. But the breeds that have been improved rapidly are the ones that I have mentioned.

Whom should we encourage to breed pure-bred animals? If a pure-bred animal is good for you and for me, why is it not good for any man and every man engaged in the same sort of business? You say that the raising of pure-bred domestic animals (keeping up the requirements and standard, to say nothing of improvement) requires skill, capital and constant, unremitting attention. These things are all so, with the possible exception of capital in some cases. But are not these things possessed by everyone to a greater or less degree? We can not be alike; some naturally will forge ahead of others. But is there a reason why anyone should not do the same thing, or attempt to do the same thing that you are doing—breed animals that are of a recognized type, that are efficient for the purpose that they are kept for and that can be depended on to transmit a large degree of this same efficiency to their descendants?

I have already spoken of the progress that is made and should be made in improving the common stock of the country by the use of pure-bred sires, and gradual “grading-up” as we say, of the animal. Since we only have from 2 to 5 per cent. of pure-bred animals, a great many men will have to do this, and a great many men will achieve success in doing it. It is the only possible thing for them to do. If you are going to improve a herd or a flock of common animals through breeding up, you have to use skill in the selection of your first original male. You must give constant, unremitting attention if you want improvement. If this is so, is it worth while for any man to be content with breeding simply grade animals, even though he can produce just as good an animal, from every standpoint, as though that animal were included within the aristocracy of the herd? He can breed grade animals that, for his own purposes, are just as good as anyone can breed. But no one is going to recognize them, and they are useful only to him; whereas if he uses the same skill and ability, care and attention, on an equally well selected pure bred, then he is doing something that is not only of service to himself but is recognized

by his neighbors on the next farm and in the next town, and by the country at large, and he has made a market for his surplus product that is as wide as the whole country. That is the great argument for breeding pure-bred animals.

I should like to make this statement, without enlarging further on the subject: If it is worth while to breed animals at all; if it is worth while to breed any animal as any animal or every animal should be bred, it is only worth while to breed within the limits of herd-book registration. But you say, "What will happen? That means that eventually every man, every owner of animals, will breed pure-bred animals." That is the logical conclusion of what real argument I have been trying to make. Every man who has any animals at all should breed pure-bred animals — should breed animals of a type that is recognized by the country at large. "Well," you say, "what will happen then? By and by we shall all be breeding pure-bred animals." You need not be alarmed — that will not happen within our lifetime, or the lifetime of our children or grandchildren. But supposing it does, what will be the result? None of our breeds, no matter how well or carefully bred, has any variation. If there were no variation we might just as well stop. That goes right back to the law of evolution. The men are going to vary — the men who use the most skill, and the most care, are going to breed the animals that will be most sought after. And there will then arise a certain aristocracy — another aristocracy — that exists at the present time in some of our breeds. When this condition of affairs comes about; when everybody has animals that are capable of being registered, then some man here and there is going to rise up, having a little more enterprise and push, and begin to improve his herd. When he has done that (he is already within the herd book), he has a possibility of coming to the front just as far as his abilities will permit, and he is within the aristocracy. Let us hasten the day when the proper future status of the pure bred will be when every man is breeding pure-bred animals.

Perhaps I have been talking theoretically and about an impossible condition of affairs. I intended to talk, if I could intelligently, about things that did not exist at the present time; that perhaps could not exist for some time to come; and that may never

exist. Unless we talk of something ahead of us we can make no progress; if we talk about things that are in front of us we may make progress. I never knew of a man who made any progress in talking about things behind him.

If, in these somewhat rambling remarks, I have given you anything to think about, as the Commissioner gave me to talk about, I shall feel that the time has not been wholly misspent, and I thank you very much for the attention you have given me.

MR. HUSON: I think we might possibly spend five minutes or so in a discussion of Professor Wing's address. If anyone desires to make any inquiries on the subject of his address, I am sure he will be ready to answer them.

VOICE: I should like to know the definition of a grade animal.

PROF. WING: I do not think it worth while. If there is anyone here who does not know what a grade animal is, he ought not to be here. So far as the common acceptance of the term is construed, we use the term "grade animal" meaning any animal that is sired by a pure-bred animal, but whose dam is not a pure bred. A grade animal must be at least sired by a pure bred.

VOICE: If the dam is a pure bred and the sire is a grade, what have you?

PROF. WING: Well, we do not mix things up that way very often. I suppose we have a grade animal just the same.

MR. HUSON: We find it necessary to slightly change the order of our program. Mr. Moyer, who appears next, is not here yet, and so we will transpose the two addresses that are stated on the program. The next in order will be an address by Mr. Herrick on the "Advisability of Public Sales of Pure-Bred Live Stock." Mr. Herrick has come here from Worcester, Mass., to meet with us this afternoon and to talk with us on this subject. He has, as you know, had a vast experience in the conduct of public sales, and has conducted some of the most successful public sales of live stock that have been held in this country. I have great pleasure in now presenting Mr. Leander F. Herrick.

MR. HERRICK: Mr. President, and Members of the New York Breeders' Association: It gives me great pleasure to be here with

you today to say a few words regarding the conduct of public sales and the breeding of cattle. Professor Wing took the statistics out of the first page of what I had to say, but if you will pardon me if I repeat a few of them, I shall read a few notes that I have jotted down.

ADVISABILITY OF PUBLIC SALES OF PURE-BRED LIVE STOCK

LEANDER F. HERRICK, WORCESTER, MASS.

Pedigreed Live Stock Husbandry in America is still in its infancy; as a nation, the majority of us are still mongrel or scrub breeders, although we have made great advances in the past few years. But a small percentage of the animals kept upon the farm, in the dairy or on the range, are of pure breeding and only about 1 per cent. are registered. One can obtain a better idea of this, when we stop and consider that there were in the United States, according to the figures of the Department of Agriculture, on January 1, 1914, 20,737,000 milch cows and 35,855,000 other cattle, the cows being valued at \$53.94 a head and the other cattle at \$31.13 each.

The four Registers for dairy cattle, consisting of the American Jersey Cattle Club, started in 1868, the American Guernsey Cattle Club, started in 1884, the Ayrshire Breeders' Association, started in 1875; the Holstein-Friesian Association of America, started in 1872, have registered up to date

Jerseys	421,574
Guernseys	76,435
Ayrshires	52,660
Holsteins	350,000
a total of 900,669 for the dairy breeds, while the Shorthorn register, started in 1846, have recorded 974,895 animals.	

These in the aggregate total 1,875,564 animals. There are numerous other breed association registers, the figures of which are not at hand, which would probably swell the total to 2,625,000. This includes all animals registered from the starting of the books to the present time and of course a large majority of them are dead, but even were they all in existence today they would make but a small percentage of the neat stock upon our

farms, as there were sold in the markets of St. Louis, Kansas City, Omaha, Chicago, St. Joe and Sioux City, in 1913, approximately 7,500,000 head.

The markets named, together with the smaller ones scattered throughout the country, provide breeders with an ever-ready market place for their surplus grade animals of all classes, and the shipper can at any time cash in at the top price for the class of stock which he may consign, less the necessary expenses and commissions. The selling forces of the different markets are so organized and systematized that the beef breeder can command expert service at a nominal fee and obtain more for his stock than if he were to try to handle it himself.

Numerous breeders of the beef breeds have, for many years, sold consignments of their pure-bred animals at auction at the leading stock yards or at some of the larger shows and have found, in the majority of cases, a ready sale for their males for use in infusing new blood into the herds upon the range.

Beef will never be cheap again in the sense that it has been. The free range has gone and the increase of population, and the changes in the methods of agricultural development have seen most of the large ranch outfits dispersed and the man who is succeeding in developing a beef herd, on the higher priced land, and with the increased cost of feed, labor, etc., is the one who pays close attention to the care of his animals and to the blood lines in his breeding stock.

If we would see some of the best specimens of pure-bred live stock in the world, we should visit England and Scotland. A study of the man who bred the animals would reveal to you that he had coupled skill and patient, painstaking effort, with an untiring perseverance and an attention to the work which had crowned him with success.

In those countries, live stock industry attracts the attention of their most intelligent men, who, as a rule, give it close study for a life work, which is handed down from father to son. The history of the greatest herds and flocks of England show this to be a fact.

The American policy, in most instances, has seemed to be more of an in and out affair, quick profits being the aim, dispersing

herds which have attained more or less pre-eminence, changing from one breed to another, and undoing what it has taken a long time to attain, many times necessitating a draft on other breeders for new blood for recuperation, often selected to follow the dictates of fashion, with disastrous results.

The British stockman, in many ways, is more advantageously situated for disposing of his stock than the breeders in this country; animals of a certain breed being popular and bred extensively in near-by localities, with the result that two or three of the English breeders get together and pool their animals for a single yearly sale, to the advantage of all.

On this side, we may have one prominent breeder in the Dominion of Canada, another in Indiana and still another in Texas. These long distances between breeders of the same breed prevent mutual arrangements for disposing of surplus stock, and the buying of new blood from a known source. It has many other disadvantages unknown to the British stockman, among them, the difficulties of social intercourse among breeders, very necessary if for no other than business purposes; the great cost of shipping purchases from one point to another, not to mention the cost of the man in charge, a necessity in shipments of this nature; and above all, the lack of a home market. This is one of the worst features of American husbandry and until some solution is found to remedy this handicap, the outlook is gloomy.

The one remedy that comes to mind, is community breeding and community auction sales. But this is a large subject and I see by the program that Dr. Eugene Davenport of the Illinois College of Agriculture will give you an address along this line on Thursday afternoon. I hope you will all be on hand for I can not help thinking that some development of this nature is very necessary to develop the dairy cow, especially from the financial standpoint.

One thing which has done much for the success of the English breeders in establishing a name for their animals in England has been their sticking to a single breed of cattle with a fixed purpose to breed the best and improve their herds from year to year. This has often been illustrated by the sale results when animals from the noted breeders have been offered to the public.

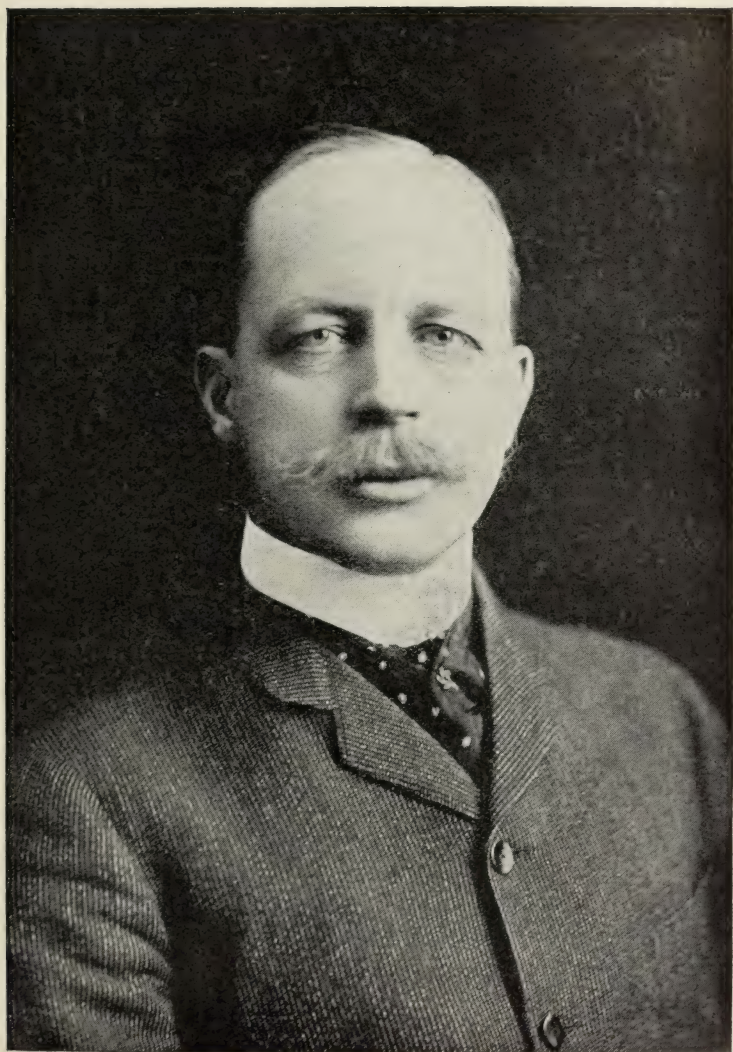


FIG. 222.—L. F. HERRICK

The record of the Marrs of Uppermill, who developed a great herd for two generations, selling their surplus at public sales each year, sending their cattle to all parts of the world, which usually proved to be of great advantage to the purchasers and added renown to the Uppermill herd, can well be cited.

A few of the rules of the Marrs can be followed by our breeders, among them:

“In buying put your money in one animal, well up to your standard, rather than in two or three below it.”

“Select a sire of wide excellence, after considering the quality of his sire and dam.”

“Do not part with a stock bull until you have seen his calves.”

“Keep your best females and discard all falling short of your ideal.”

“Then give your animals attention; do not overfeed or starve; keep them clean and comfortable; treat them kindly and stick to your good cattle in hard times, they eat no more than scrubs, they pay better, are a pleasure to the eye and good times will come again.”

Other noted herds in England which were bred and managed under similar auspices have made records in all parts of the world. At the closing-out sale of the great Lord Wilton Herefords in August 1884, 183 head sold for an average of \$625 each; the Dunmore sale of Shorthorns, sold in August 1875, made an average of \$3,829 each for 39 head. These are records of public sales at auction.

The thoroughbred horse is the highest type of a pure-bred animal bred by man and the records show that no horse with 1/32 per cent. of cold blood ever won the Derby. The Blood Horse sales in November last at Newmarket by Messrs. Tattersall, give an idea of the interest taken in the thoroughbreds and horse breeding. Buyers were present from all parts of the world and in four days, 713 lots were sold for 308,658 guineas, or an average of 433 guineas (over \$2,250) each.

In no other way than by public sale could these prices have been nearly approximated. There was no single breeder whose animals were sufficiently renowned to have attracted the audience

which stood in the auction ring at the time of this offering. There was no single breeder who had the information and organization to have gotten the same class together. To be sure, the horses which were offered were the choicest selection from the most successful studs and were no doubt fitted and in excellent condition, but the success of the sale was made by having all things harmonious. Animals of great renown, fitted for sale, offered in the most advantageous market, advertised in a masterly way, catalogued intelligently, and sold by peers of the profession, were the fundamentals which made the splendid success possible. Indeed, the omission of any one of the above enumerated points would have cut the average of the sale severely.

One of the necessities for the successful manufacturer, merchant or mine owner, is to have a market for his goods. The breeder of beef cattle is supplied with this market to a certain extent but the breeder of pure-bred dairy cattle is seriously handicapped. If he has a herd of sufficient size to warrant the expense of advertising and has animals of the right quality, he can undoubtedly sell them at public sale and attain better results than by offering them at private treaty, unless, of course, he lives in too remote a section. The expense of advertising and selling at private sale; the time taken in showing the cattle and keeping the herd in good show condition throughout the year, and the annoyance caused by trying to dispose of the animals in this way, usually makes it a very thankless task. On the other hand, should he fix a date on which to offer his entire surplus at public auction, get them into as good condition as possible and sell them all at one time, it will prove in the long run to be much more satisfactory, leaving the remainder of the year to attend to his other interests.

In many instances, animals offered to the public at auction will sell below the owner's valuation, but this is not necessarily an entire loss, as you, who have gone carefully into the cost of breeding know the farm or cost value of any animal in the herd is the proportional cost of any one to the whole. In other words, the cost of one is the cost of the whole herd, divided by its number. So, to figure the profit on a sale, we have to go by the law of averages. Differences of age, sex, quality, breeding and even

in females, the sire of the unborn calf, affect the prices materially. Some of these qualities appeal to certain people; other qualities to others; the prices of the auction fluctuating according to the fancy of the buyers. Consequently, it happens that all animals which the owner especially valued, will not be so keenly sought and bid on as he expected, with the result reflected in the price obtained, but others will sell for a great deal more money than he expected and up will go the average price, which is the only test of a successful sale; and the only way for the stock breeder to figure profit and loss. One of the leaders in the business often says, "A satisfied buyer is the best advertisement" if one intends to remain in the business for a lifetime and does not expect to fill his pockets in a few years and then retire.

I have looked up the sales reports among Jerseys for the past eight years and I find that in 395 sales, 22,753 animals of different ages were sold, averaging \$148.54 each. In 1913, of 74 sales reported 3,873 animals sold for \$619,302, an average of \$159.90. During the past seven years, 1,421 head of Guernseys have been sold at auction for \$430,298, an average price of \$302.81. In the same time, 13 Ayrshire sales have been held with the result that 1,226 animals were sold for \$172,359, or an average of \$140.58. Unfortunately I have not the figures for the Holstein sales, but a very large number of this great dairy breed, so popular in your state and deservedly gaining in popularity throughout the country, have been sold, many of them for very high prices. These averages include animals all over the United States, of both sexes and in all conditions, and are probably better averages than many, if any, breeders can show in their entire private sales.

The best illustration which I can give of a fixed purpose to breed the best and sell the best in dairy cattle, is that of the Messrs. T. S. Cooper & Sons, of Coopersburg, Pennsylvania. Mr. Cooper has given more than forty years to the selection of Jerseys on the island and breeding and distributing them to the greatest herds in America. This is an old story to many of you, but it will bear repeating. He is a keen judge and a close student of the breeding problem. No price was ever too high for him to pay for an animal that was, in his opinion, of outstanding merit. His policy has always been to offer the best and to please his buyers.

The record of his sales shows that this policy was the correct one and it must have proved profitable to him, as his public sales have totalled around \$1,500,000. In the past 14 years, he has sold 1,741 head at auction for \$891,789, or an average of \$512.22 a head, and there is hardly a Jersey herd in this county today where some of the animals do not trace in their pedigrees to animals that were bred or imported by Mr. Cooper. There is no important show held in this country where animals from his imported or home bred herds do not win. His record is a record of successes. I take this opportunity to say that he has done more for the Jersey cow in this country than any other man. To be sure, he has sold many animals at his sales which did not bring their cost or near their value, but he has been satisfied that they were improving the herds which they went into and he has had the great satisfaction of having a clientage who have turned to Linden Grove, year after year.

The demand for the best in live stock is increasing in every section of the country. High class dairy products are being called for at prices remunerative to the producer; the supply is not keeping up with the demand and this condition is attracting new men with capital to the field. Farms which are convenient to market are being tilled with greater intelligence, stables with modern, sanitary, labor-saving devices are being erected and the market for pure-bred producing dairy animals is extremely attractive. The herd book associations of the different dairy breeds are all keenly alive to this condition and are striving to popularize their respective breeds by advertising, offering premiums at fairs and by their register or merit and advanced registry work.

A breeder who has a producing herd of good animals, free from disease, need not fear to offer them to the public at a public sale. Of course, there are many who are not situated so that they can offer animals of the right selection from their herd, but where it is possible to do so, two or more breeders can get together and if they will consign from their herds a selection of representative animals of desirable ages, properly fitted, sound and free from disease, with proper guarantees as to these important points, I unhesitatingly say that they will not be disappointed at the outcome of the offering.

Do not infer, however, that I advise the offering of culls or undesirable animals; there has been too much of this done among all breeds. Animals of no particular merit have been catalogued and sold on the strength of their being registered, many times to the new beginner, who has taken them home only to find out that they are valueless for the purpose for which they were bought and that he has been duped. The buyer disposes of them in disgust and many times condemns the breed as well as the breeder.

There are a few things to be considered, however, in preparing for an auction sale. The business of systematic preparation for absolute auction sales and a thorough and effective advertising of such sales, is of vast importance in a successful liquidation. There is danger in leaving the management to the amateur or the inexperienced layman. For one office to prepare and make the catalogue, for another office to advertise the sale and for a third to sell the property, usually means disaster.

For a successful sale, it is necessary to get the attendance at the sale of the breeder, the dealer, the fancier and the man who purchases for his home demand.

The date of the sale should be fixed well in advance of the time on which it is to be held. The animals to be sold should be tentatively selected and should be put into condition, giving time to have them in proper shape on a sale day, and the date once fixed should be properly advertised and all arrangements necessary to the carrying out of it should be made well beforehand.

The order in which the animals should be sold, the manner in which they should be presented to the public, the selecting of good representatives from the different herds,— not the culls — the positive guarantee of health and that the animals are free from contagious diseases and are sold with certificates of reliable tuberculin tests, permitting them to pass from one state to another, and the fact that the animals to be offered are breeders, are all matters which should be positively stated and which inspire confidence in the would-be purchasers.

Indecision, dilatory and waiting methods invite disaster. Plan the entire transaction from start to finish and then carry out the plans.

The above are not matters of opinion but purely those of experience.

MR. HUSON: I am in receipt of a telegram from Mr. Moyer saying that he is unexpectedly prevented from being present this afternoon. We hope that he will be here later during the meeting and we may hear from him. We have, however, in place of Mr. Moyer, two gentlemen who will talk to us for a little time — one of them Dr. Moore, the Dean of the Veterinary College at Ithaca, who will speak on the very important subject of "Contagious Abortion in Cattle;" and Mr. Akin, who has recently returned from Europe, who will talk to us on some of the conditions under which horses are bred in the countries of the Old World, particularly in Belgium and France. Before taking up either of these, I think I will ask Mr. Allis, representing the State Fruit Growers' Association, to make an announcement which he has in mind.

MR. ALLIS: The New York State Fruit Growers have for some time been holding their midsummer meeting in Western New York, and this year we have an invitation from the fruit growers of the Champlain District of Northeastern New York to hold our meeting with the fruit growers of that section. We shall have a special train and an excursion on Lake Champlain; then we come back to Thousand Islands and back to North Rose, where we have a second meeting. The entire expense of this trip will be under \$30. Our society extends an invitation to every and any one of this association who will go to do so, by writing Mr. Gillett, of Penn Yan, Mr. Porter, of Albion, or myself. It will probably be the last week in July. This is to be an innovation in summer meetings.

MR. HUSON: I am now very glad to present to you Dr. Moore, who is always ready to lend a helping hand, and who is of great service to all of us engaged in the breeding of animals. Dr. Moore.

A STUDY OF INFECTIOUS ABORTION IN CATTLE.*

VERANUS A. MOORE AND CLIFFORD P. FITCH

Department of Comparative Pathology, Bacteriology and Meat Inspection.

The serious results of infectious abortion in the dairy herds of the State have prompted a somewhat careful study of this affection for the purpose of acquiring more definite knowledge concerning its cause, means of dissemination, diagnosis and control.

During the last few years, infectious abortion has been the subject of many careful researches and its literature has become voluminous. Unfortunately for the veterinary practitioner, as well as for the cattle owners, there is divergence of opinion relative to the essential features of this disease, such as the channel or channels of infection, best procedure for the diagnosis of infected animals, methods for its prevention and control if it has already gained entrance to the herd.

Because of the economic importance of this disease, we undertook some three years ago a study of the problems it presented, for the purpose, if possible, of obtaining more definite and conclusive knowledge concerning it. It seems desirable to present, in addition to our work, a summary of the more important findings on this subject.

It is believed that the problem before us should be made as clear as possible, relative to what is, and what is not, known about this disease. The differentiation between the known and the unknown features of this disorder will, it is believed, be of much assistance in directing further investigations and in formulating practical methods for its prevention and control.

CAUSE.

For many years there was doubt concerning the infectious nature of this disease. In 1896, however, Bang and Stribolt isolated from the emptied uteri and expelled fetuses an organism which they believed was the cause of the trouble. They produced

* Instead of printing the remarks as given, Dr. Moore suggested that an article entitled "A study of infectious abortion in cattle," which had been prepared for the annual report of the New York State Veterinary College by himself and Dr. Fitch, be substituted. This suggestion was followed. The article here published contains not only what was stated at the meeting but many other facts that will be of value to cattle breeders.

abortion in pregnant cows with cultures of it. Later other workers confirmed their findings. *Bacillus abortus** as this organism is generally called was, according to Bang and Stribolt, somewhat difficult to cultivate owing to its anaerobic tendencies. Some years later, it was found to be less anaerobic than was inferred from Bang's original description and its cultivation was less complicated. There was, however, difficulty in isolating it. MacNeal and Kerr pointed out that pregnant guinea pigs inoculated subcutaneously with the exudate from the uterus of a cow that had just aborted would abort and from the uterus of the guinea pig pure cultures could be obtained. This method was found to work very satisfactorily. Nowak isolated it by making plate cultures and growing them in an air tight jar with cultures of *B. subtilis*.

The fact seems to be clearly established that the specific cause of infectious abortion in cattle is the organism isolated by Bang and Stribolt. Its morphology and cultural characters as well as the technique for its cultivation have been carefully studied by Bang and Stribolt, M'Fadyean and Stockman, MacNeal and Kerr, Nowak, Zwick and Wedemann, Holth, Fabyan, Schroeder, Cotton, Mohler and Traum and others. While slight differences appear in the descriptions of the organism, they are not greater than might be expected or than actually exist with different varieties of many species of bacteria. The various methods proposed, and that have been used, for its isolation and cultivation clear away much of the confusion concerning its life conditions. The organism can be cultivated on a number of media, such as the agar-gelatin-serum of Bang and Stribolt and on potato, glycerin agar and certain liquid media, such as glycerin-broth serum, glycerin bouillon, milk and others.

Ascoli has recently described a method of obtaining pure cultures by growing them on agar to which a few drops of sterile horse serum is added to the condensation water. The cultures thus made are grown in an air tight jar with cultures of *Bact. anthracis*. It can be cultivated on glycerin-agar and serum-bile-agar directly from the uterine exudate and cotyledons of an animal which has recently aborted.

*This is a non-motile, rod shaped organism and consequently belongs to the genus *Bacterium* if Migula's classification is followed.

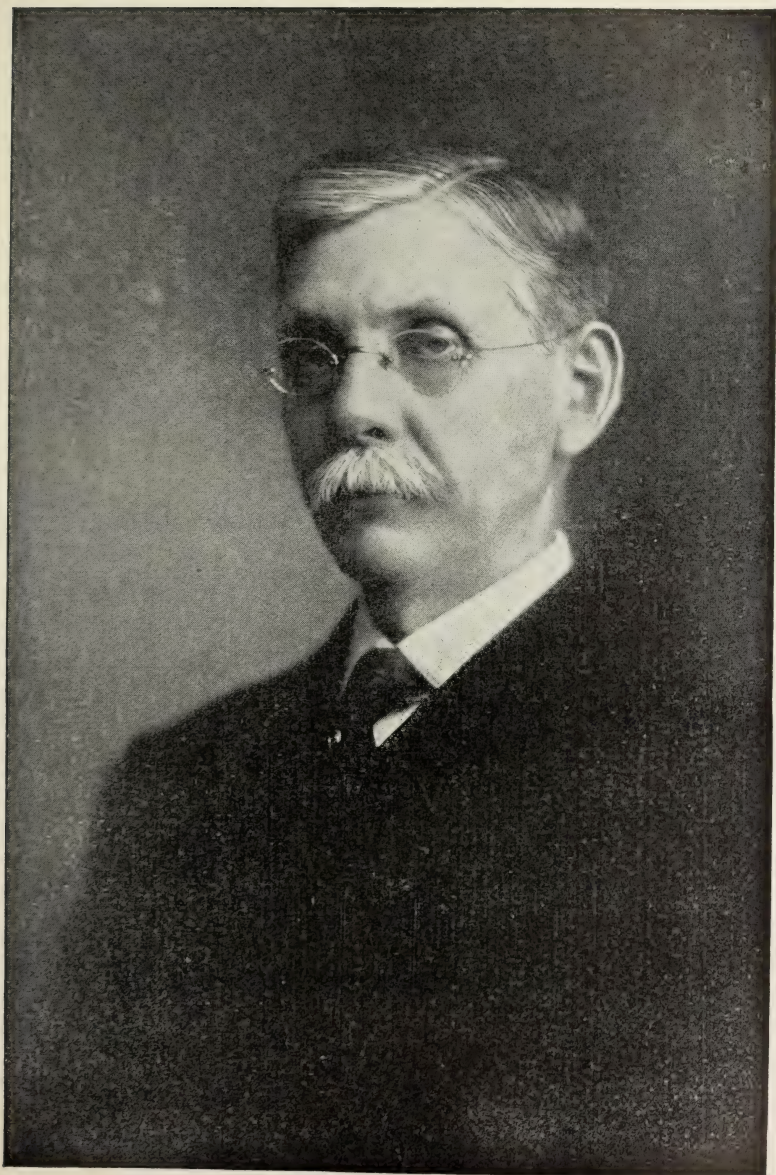


FIG. 223.—DR. V. A. MOORE

It has been shown by the work of the authors mentioned, and it is our experience, that this organism can be cultivated in a variety of artificial media, that it is not an obligatory anaerobe and that after a few generations it can usually be cultivated under aerobic conditions. Its cultural characters seem to be quite constant when it becomes adapted to artificial media.

Distribution. The natural distribution or habitat of the Bang organism has not been fully determined. As it is a pathogenic organism the question is whether or not it exists in nature outside of the infected animals. The observations as recorded in the literature indicate that it is able to live for a considerable length of time on litter or other articles contaminated with it. Nocard believed that the virus of infectious abortion could be disseminated on the litter and forage from stables in which aborting animals were kept. There are suggestions emanating from those who have studied the disease clinically that the virus is widespread, practically everywhere in nature. It is important to determine whether or not this organism has a saprophytic as well as parasitic existence. Thus far it does not seem to have been isolated from any source where its presence could not be accounted for on the theory that it came from an infected animal. A full knowledge of how the virus may be carried from one herd to another is not conclusive. The organism does not seem to have been obtained either by culture or inoculation methods, except from the uterus and foetuses of cows that have aborted; from the tissues of experimental animals that have been inoculated with it and from the milk of a considerable percentage of cows that have aborted. The hypothesis that this organism is very widespread in its natural distribution does not seem to be confirmed. The more recent findings of the organism in the milk of many cows which aborted months before suggest that the stables in which such animals are kept are very liable to become infected.

The finding of the bacterium of abortion in milk has occasioned considerable alarm as to its possible effect upon calves. Danger to the human family has also been suggested. In their earlier work, M'Fadyean and Stockman called attention to the possible "upkeep of the abortion bacillus in the milk of infected cows." Schroeder and Cotton have found this organism in the milk of a large number of cattle.

Fabyan and Smith found it in the milk of cows that had aborted. There still seems to be a lack of evidence that the milk of nonaborting cows, in herds where abortion has not occurred, is infected. Recently Cotton published interesting facts on the presence of the organism in the udders of three cows at the Bureau of Animal Industry Experiment Station that were not known to have aborted. It should be stated, however, that these animals were in a herd in which abortion had occurred. The percentage of cows that carry the organism in their udders after aborting has not been determined. M'Fadyean and Stockman's suggestion calls attention to the possibility that the udder may serve as a "reservoir" in which the organisms may be retained for variable lengths of time after abortion has taken place. The more recent findings indicate such an explanation for the presence of the organism in the udder. There is no evidence that the germ in the milk affects calves although the suggestion has been made that possibly certain intestinal troubles of young calves may be caused by the abortion organism. This as yet seems to be hypothetical.

We have made a large number of inoculations into guinea pigs with the milk from eleven cows over a period of three years. So far as we know these cows had never aborted. We know that they did not abort during the time these examinations were being made. There was no evidence of infectious abortion in any of these pigs when examined at least three months after inoculation.

Resistance to Disinfectants and Heat. In reference to the resistance of the Bang organism to disinfectants and heat, the following has been reported: Zwick and Wedemann found that it was killed by a 2.5 per cent kresol solution in 2.5 minutes when a one day old culture was used and in 15 minutes when a three day culture was employed. A seven day culture resisted the influence of the disinfectant for forty minutes. They found a 3 per cent solution of carbolic acid, or a 2.5 per cent dilution of formalin able to destroy it in from ten to twenty minutes. Old cultures were more resistant than those that were but two days old. Preisz found that it was destroyed by a 1-1000 corrosive sublimate solution in 15 seconds, by a 1 per cent carbolic acid solution in 1 minute, by a 2 per cent acetic acid solution in two minutes and by a 1 per cent solution of acetic acid in ten minutes.

Rich found in laboratory tests that one part of corrosive subli-

mate in 10,000 parts of water destroys the organism, in from one to three minutes. For stable disinfection, he recommends a dilution of 1 to 1,000. He found that a solution of lysol, 1 part in 1,000, killed the organism in from three to five minutes. Liquor cresolis compositus was quite as effective as the lysol solution.

Zwick and Wedemann found that a temperature of 55° C. in a water bath would kill the organisms in from twenty-five to thirty minutes. A 60° C. temperature destroyed them in from ten to fifteen minutes. M'Fadyean and Stockman found that a temperature of from 55° to 60° C. was fatal, in ten minutes. Fabyan found the thermal death point to be 59° C. for ten minutes.

Pathogenesis. The pathogenic properties of the Bang organism seem to vary in a marked degree in different cultures. This is indicated by their effect on pregnant cattle and on guinea pigs.

Bang and Stribolt were the first to give a detailed description of the lesions produced by this organism in the gravid uteri of cattle. The inoculation of pregnant cattle either intravenously or by feeding produces abortion after a variable length of time. Often such animals go to full term and give birth to a fully developed calf. Zwick and Zeller found it produced a fibrino-purulent inflammation of the foetal and maternal placenta. A like inflammation was observed in the stomach and intestines of aborted foetuses.

Schroeder and Cotton seem to be the first to have pointed out the general character of the lesions produced in guinea pigs. They found them to resemble somewhat closely on microscopic examination those produced by the bacterium of tuberculosis not only in their general appearance but also in their distribution in the spleen, liver and lymph nodes and in males by a breaking down of the testicles. Fabyan describes the lesions in fifty-eight pigs inoculated with tissues from aborted cows, tissues from diseased guinea pigs and with pure cultures. In five of these death was the uncomplicated result of inoculation with the Bang organism. The lesions found were practically constant. They usually appeared between the third and sixth week, the acute changes extending over a period of ten to twenty weeks after which reparation processes began. The disease is accompanied by fever and tends toward a final recovery although the animal may die from rupture of the spleen, emaciation and exhaustion. He found that all the

tissues of the body may be attacked with the exception of the muscles. The lesions were quite characteristic. Rabbits were not affected, although cultures of the organism were obtained from the spleen ten weeks or more after the inoculation. Thus far, the inoculation of cattle is not known to produce lesions other than those of abortion in pregnant cows.

A number of other manifestations have been reported due to the Bang organism. These have not been observed in our work. Jensen traced the cause of white scours in calves to the abortion organism in one case out of 208. Holth was unable to secure a complement fixation test or agglutination reaction from calves that died of diarrhea within the first two weeks of life. Mohler and Traum found one case in which both reactions occurred in a prematurely born calf that died of scours when ten days old. They found that a culture which produced abortion in rabbits inoculated intravenously failed to do so after it had been grown for two generations.

Surface has described an epizootic of abortion among guinea pigs. He isolated the Bang organism from two of the pigs. From one it was obtained from the spleen and liver, and from the other from the spleen only. Cultures made from other reacting guinea pigs were negative.

CHANNELS OF INFECTION.

The early work of Bang indicated that the channel of infection was through the generative organs and that the male was the carrier of the virus. He produced abortion in two animals by injecting the organism into the vagina. The experience of dairymen, however, did not confirm this as the only method by which cattle became infected.

Later investigations have shown that abortion may be brought about by giving the virus to pregnant animals through the digestive tract, generative organs (vagina) and also by intravenous and subcutaneous inoculation. The injection of the virus into the tissues or veins cannot be considered a natural means of infection but it has proven to be of limited value in experimental work. The respiratory tract was suggested by Nocard as a possible way by which it enters the body. Although there are several possible channels of infection, there seem to be but two through

which it is at all likely infection takes place naturally in dairy cattle, namely, (1) through the *genital* tract and (2) through the *digestive* tract.

M'Fadyean, Sheather and Minett in their studies of channels of infection used the intravenous and subcutaneous methods of artificial infection and the introduction of the virus through the digestive tract and *per vaginam*. They found that animals of either sex could be infected per rectum and males through the prepuce. This tends to show that the male may transmit the virus from being himself infected in addition to being a mere carrier of the specific organisms from one cow to another. Reynolds emphasizes the importance of the bull in carrying the virus.

While it was first thought by Bang that infection usually took place through the generative organs, he came to the conclusion later that they gained entrance to the body in certain cases at least through the mouth. M'Fadyean and Stockman consider this as one of the channels of entrance. Zwick and Zeller, Holth and others look upon the ingestion of the virus as an important means of infection.

Mohler and Traum state that "from the vast number of experimental abortions produced by introduction of virus through the mouth, particularly in animals, such as rabbits, where the virus is introduced by tube and infection by vagina can be easily excluded, this means of infection must be given an important place, especially so until satisfactory experimental evidence is brought forward to the contrary."

Williams considers the genital tract the principal, if not the only, channel of infection. Mohler and Traum have pointed out the ease with which the virus could be naturally transmitted from the mouth to the vulva and vice versa, through the habit of licking. In support of Williams' theory is the opinion of those who have tried to trace a relationship between the granular venereal disease of cattle and infectious abortion and sterility. Thus far there seem to be no definite data on which to establish such a relationship beyond the phenomenon that on the vulva and vagina of cattle which abort there may be present numerous nodules of lymphoid tissue, which in some cases may be congested and possibly inflamed.

Wilson writes, "I have not found severe granular lesions in slipped cows or heifers although a number of these have been examined at various times, before and after the act of abortion. On the contrary, the signs of chronic granular vaginitis have been comparatively slight and insignificant, although a chronic purulent endometritis leading to temporary sterility has been a common sequel of the abortion. Moreover I have not found any relation between the extent of the lesions and the number of abortions, in either freshly infected or older infected herds."

EXPERIMENTS ON INFECTION.

The serious losses from abortion and the indefinite knowledge of channels of infection, and the uncertainty of the methods of immunization, diagnosis and control led to our undertaking a series of investigations of this disease. Our first efforts were to determine if there was any way by which we could with certainty produce abortion in susceptible cows in order to determine to what extent methods for immunization could be considered successful experimentally. The funds available for this work have been small and consequently the experiments have followed each other rather than having been conducted simultaneously.

In 1911, five pregnant cows were secured and inoculated in the jugular vein. They had been bred for from one to three months before purchase. Ten cubic centimeters of a cloudy suspension from glycerin-agar cultures were used. The suspension was filtered through sterile cotton to remove any clumps of bacteria or particles of agar. These animals gave a pronounced temperature reaction and one of them aborted on the seventh day. The others fully recovered from the immediate reaction but aborted later as the following table shows:

TABLE SHOWING THE DATE OF INOCULATION AND TIME OF ABORTION.

Number of cow.	Date of inoculation.	Date of abortion.	Time required to produce abortion.
395.....	May 2, 1911	July 6.....	65 days.
388.....	May 2, 1911	July 26.....	85 days.
393.....	May 2, 1911	July 26.....	85 days.
303.....	May 2, 1911	May 28.....	26 days.
748.....	May 2, 1911	May 9.....	7 days.

These cows were killed and the uteri carefully examined. The characteristic lesions of abortion were present in every instance except No. 748. Cow No. 395 was not killed until 60 days after abortion. There was considerable fetid, viscid, purulent matter in the uterine cavity. The Bang organism was recovered from the exudate. In this experiment there was 100 per cent of abortions. These results suggested that this method would be trustworthy as a means of artificial infection in experimental work. In another experiment conducted by Dr. Williams a series of five heifers was inoculated intravenously with 10 cc. of a suspension of the same strain of the Bang organism that was used in the former experiment and recovered from the uterus of cow No. 303. He obtained quite different results as the appended table shows:

TABLE SHOWING DATE OF BREEDING AND INOCULATION WITH
THE RESULTS OBTAINED.

Number of Cow.	Date of breeding.	Date of inoculation.	Result.
14.....	May 5, 1911	July 6.....	Killed January 3, 1912. Uterus and foetus normal.
15.....	April 20, 1911	July 6.....	Killed November 4, 1911. Considerable exudate adherent to placental membranes. Abortion organism not found.
16.....	April 14, 1911	July 6.....	Killed October 25, 1911. Uterus and foetus normal.
24.....	April 1, 1911	July 6.....	Killed November 6, 1911. Uterus and foetus normal.
22.....	April 1, 1911	June 30.....	Killed August 10, 1911. Uterus and foetus normal.

The abortion bacterium was not recovered from any of these cows, although No. 15 suggested very strongly that the disease was present.

Another experiment which was carried out by Williams and reported by him shows that of three heifers that were inoculated intravenously, one aborted and two gave birth to healthy calves. We quote his statement and table:

"We have conducted some very limited but interesting experiments along these lines. We procured 1 bull and 3 heifer calves at less than one day old and grew them in the college hospital where chiefly horses are kept and where they were never in contact with other cattle. When approximately 16 months old, daily dis-

infection of the vagina and sheath was instituted, later reduced to twice weekly. After continuing this disinfection for some two months the heifers were bred, each conceiving at the first service by the bull, which had not previously copulated. The disinfection was continued after copulation until one estrual period had passed. Pregnancy was then verified by rectal palpation and after a lapse of 28, 31 and 24 days, respectively, the 3 heifers each received in the jugular 10 cc of an active culture of the *Bacillus abortus*, the stock having been obtained from Herd B."

	DIAGNOSIS TESTS.			Complement-Deviation.	AGGLUTINATION.			
	Month.	Day.	Days after inoculation.		1-50.	1-100.	1-200.	1-600.
Heifer No. 36	May	20	0	—	—	—	—	—
Bred, April 22.	June	9	20	+	+	+	+	+
	June	21	32	+	+	+	+	+
	July	25	66	+	+	+	+	Sl.
Inoculated, May 20.	Aug.	13	85	..	+	+	Sl.	—
	Aug.	23	95	..	+	+	—	—
Days pregnant, 28.	Oct.	5	138	..	+	—	—	—
	Oct.	25	158	..	—	—	—	—
Heifer No. 34.	June	10	0	—	—	—	—	—
	June	13	3	—	—	—	—	—
Bred, May 3.	June	15	5	—	+	—	—	—
	June	17	7	?	+	+	—	—
	June	21	11	+	+	+	+	+
Inoculated, June 10	July	25	45	..	+	+	+	Sl.
	Aug.	13	64	..	+	+	Sl.	—
	Aug.	23	74	..	+	—	—	—
Days pregnant, 38	Oct.	5	117	..	+	—	—	—
	Oct.	25	137	..	—	—	—	—
Heifer No. 31	May	20	0	—	—	—	—	—
Bred, April 26.	June	9	20	+	+	+	+	+
Inoculated, May 20.	June	21	32	..	+	+	+	+
Days pregnant, 24.	July	25	66	..	+	+	+	+
Aborted and killed, Oct. 31.	Aug.	13	85	..	+	+	Sl.	—
Days inoculated, 164	Aug.	23	95	..	+	+	—	—
Days pregnant, 188.	Oct.	5	138	..	+	+	—	—
	Oct.	25	158	..	+	—	—	—
	Oct.	31	164	..	—	—	—	—
Bull No. 23.	May	20	....	—	—	—	—	—
Heifer No. 29. Bred 2-4. A. 9-7.	Oct.	25	....	..	+	+	+	+

The production of abortion in all of the animals in the first experiment with the intravenous injection and the quite opposite results in the later experiments pointed to the uncertainty of this method of infecting cattle. As it cannot be considered a natural means of infection it seemed desirable to test other channels of entrance, especially the ingestion of the virus.

In 1912, four cows were taken from an experimental herd in which the Ostertag method of dealing with tuberculosis was being tested and fed cultures of the Bang organism. To our knowledge these animals had never aborted. They were in good condition. The results, as given in the records for each cow, show that three of them aborted and one delivered a living calf but suffered with retained placenta.

Cow No. 62. A grade cow about 6 years old. Purchased July 30, 1912. She was bred August 11, 1912 to the bull at the Veterinary Experiment Station. She was fed (drench) October 23d with about 100 cc of a suspension in sterile salt solution of the Bang organism. November 29th she was fed 50 cc of a similar suspension. She aborted March 7, 1913. The foetus weighed 12 lbs. Following the abortion she suffered with retained placenta.

TABLE SHOWING AGGLUTINATION REACTIONS AFTER BEING FED THE BANG ORGANISM.

DATE OF DRAW- ING BLOOD.	AGGLUTINATION TEST.				Remarks.
	DILUTIONS.				
	1-50.	1-100.	1-200.	1-600.	
Nov. 3, 1912.....	+	+	+	—	Fed abortion bacteria October 23, and November 29, 1912.
Nov. 9, 1912.....	+	+	*+	—	
Jan. 22, 1913.....	+	+	+	+	Aborted March 7, 1913.
Feb. 10, 1913.....	+	+	+	+	
Mar. 16, 1913.....	+	+	+	+	
April 7, 1913.....	+	+	+	+	
Aug. 1, 1913.....	+	+	+	+	
Oct. 26, 1913.....	+	+	—	—	
Dec. 26, 1913.....	+	+	+	+	

* Slight.

Cow No. 64. A grade cow about 6 years old, obtained July 30, 1912. She was with calf when bought but we could not ascertain the date of breeding. This animal was fed October 23d and November 29th the same as No. 62. She aborted March 21, 1913. There was a swelling of the vulva and a discharge of mucus ten days before abortion. June 20, 1913 a cystic ovary was detected by rectal palpation. The cyst was ruptured and the animal was bred July 22, 1913.

TABLE SHOWING AGGLUTINATION REACTIONS AFTER BEING FED
THE BANG ORGANISM.

DATE OF DRAW- ING BLOOD.	AGGLUTINATION TEST.				Remarks.
	DILUTIONS.				
	1-50.	1-100.	1-200.	1-600.	
Nov. 3, 1912.....	—	—	—	—	Fed abortion bacteria October 23, and November 29, 1912.
Nov. 9, 1912.....	—	—	—	—	
Jan. 22, 1913.....	+	+	+	—	Aborted March 21, 1913.
Mar. 8, 1913.....	+	+	+	—	
Mar. 16, 1913.....	+	+	+	—	
April 7, 1913.....	+	+	+	—	
Aug. 1, 1913.....	+	+	+	+	
Oct. 26, 1913.....	+	+	+	+	
Dec. 26, 1913.....	+	+	+	+	

Cow No. 65. A grade cow about 6 years old, purchased July 30, 1912. She was with calf when bought but we could not ascertain the date of breeding. This animal was fed October 23d and November 29th the same as No. 62. January 1, 1913 the vulva was noted to be swollen and there was considerable mucous discharge from the vagina. The udder even up to the time of calving showed but little if any swelling or distension with milk. She calved January 19, 1913. The calf was very small and weak but apparently fully developed. Following parturition the cow suffered with retained placenta and pyometra. She was bred May 5th and again July 13th.

TABLE SHOWING AGGLUTINATION REACTIONS AFTER BEING FED
THE BANG ORGANISM.

DATE OF DRAW- ING BLOOD.	AGGLUTINATION TEST.				Remarks.
	DILUTIONS.				
	1-50.	1-100.	1-200.	1-600.	
Nov. 3, 1912.....	+	+	—	—	Fed abortion bacteria October 23, and November 29, 1912.
Nov. 9, 1912.....	+	+	*+	—	
Jan. 22, 1913.....	+	*	—	—	Calved January 19, 1913.
Mar. 8, 1913.....	+	+	+	—	
Mar. 16, 1913.....	+	+	+	—	
April 7, 1913.....	+	+	+	+	
Aug. 1, 1913.....	+	+	+	+	
Oct. 26, 1913.....	+	+	+	+	
Dec. 26, 1913.....	+	+	+	+	

* Slight.

Cow No. 66. A grade cow about 6 years old, purchased July 30, 1912. She was with calf when bought but we could not ascertain the date of breeding. This animal was fed October 23d and November 29th the same as No. 62. On January 22, 1913 the vulva was noticed to be swollen and there was considerable mucous discharge from the vagina. She aborted February 5, 1913. The foetus was large but hairless. Following parturition, the cow suffered with retained placenta and pyometra. She was bred July 11, 1913.

TABLE SHOWING AGGLUTINATION REACTIONS AFTER BEING FED
THE BANG ORGANISM.

DATE OF DRAW- ING BLOOD.	AGGLUTINATION TEST.				Remarks.
	DILUTIONS.				
	1-50.	1-100.	1-200.	1-600.	
Nov. 3, 1912.....	—	—	—	—	Fed abortion bacteria October 23, and November 29, 1912.
Nov. 9, 1912.....	—	—	—	—	
Jan. 22, 1913.....	+	+	+	+	Aborted February 5, 1913.
Feb. 11, 1913.....	+	+	+	+	
Mar. 8, 1913.....	+	+	+	+	
Mar. 16, 1913.....	+	+	+	+	
April 7, 1913.....	+	+	+	+	
Aug. 1, 1913.....	+	+	+	+	
Oct. 26, 1913.....	+	+	+	+	
Dec. 26, 1913.....	+	+	+	+	

The results obtained in the first feeding experiment indicated that this was quite as satisfactory for experimental infection as the first experiment with the intravenous method. To verify the findings we secured early in May, 1913 four cows about six years of age for the purpose of repeating the feeding experiment. One had been bred and the others were bred after we obtained them. We cannot give the final results of the experiment regarding abortion but the data relative to the agglutination test are appended with the record of each animal.*

Cow No. 80. A grade cow procured May 16, 1913. She was bred May 25, 1913, and fed July 11, August 11, 26 and Septem-

*The cows in this experiment were provided for us by the Commissioner of Agriculture.

ber 25th 200 cc of a suspension of the Bang organism. She is at this writing, December 20th, still pregnant.

TABLE GIVING THE DATES AND RESULTS OF THE AGGLUTINATION TEST.

DATE OF DRAWING BLOOD.	DILUTIONS.						Remarks.
	1-10.	1-25.	1-50.	1-100.	1-200.	1-600.	
July 11, 1913	*+	—	—	—	—	—	Blood drawn just before feeding.
July 13, 1913	*+	—	—	—	—	—	
July 16, 1913	+	—	—	—	—	—	Fed abortion bacteria July 11, Aug.
July 18, 1913	+	—	—	—	—	—	11, Aug. 26, and Sept. 25, 1913.
July 21, 1913	+	+	—	—	—	—	
July 23, 1913	+	+	—	—	—	—	
July 26, 1913	+	+	—	—	—	—	Still pregnant.
July 28, 1913	+	+	*+	—	—	—	
July 30, 1913	+	+	—	—	—	—	
Aug. 4, 1913	+	+	—	—	—	—	
Aug. 6, 1913	+	+	*+	—	—	—	
Aug. 8, 1913	+	+	*+	—	—	—	
Aug. 10, 1913	+	+	*+	—	—	—	
Sept. 3, 1913	+	+	+	+	+	—	
Sept. 11, 1913	+	+	+	+	+	—	
Sept. 24, 1913	+	+	+	+	—	—	
Oct. 25, 1913	+	+	+	+	+	+	
Dec. 8, 1913	+	+	+	+	+	+	
Dec. 26, 1913	+	+	+	+	+	+	

* Slight.

Cow No. 81. A grade cow, procured from the same herd as No. 80. She was bred March 10, 1913, a little more than two months before we procured her. She was fed June 3 and 21, July 11, August 11 and 26 and September 25th with 200 cc of a suspension of the Bang organism. November 28th she gave birth to a live calf. The calf was weak and died three days after birth. The cow was killed December 2 and a retained placenta found. A large amount of brownish exudate was present in the uterus. Media inoculated from the cotyledons developed mixed cultures of streptococci, micrococci and short rods which appeared to be the Bang organism but they have not been positively identified.

TABLE GIVING THE DATES AND RESULTS OF THE AGGLUTINATION TEST.

DATE OF DRAWING BLOOD.	DILUTIONS.						Remarks.
	1-10.	1-25.	1-50.	1-100.	1-200.	1-600.	
June 21, 1913	+	+	+	+	+	—	Fed abortion bacteria June 3, June 21, July 11, Aug. 11, Aug. 26, and Sept. 25, 1913.
June 23, 1913	+	+	+	+	+	—	
June 25, 1913	+	+	+	+	+	—	
June 27, 1913	+	+	+	+	+	++	
June 30, 1913	+	+	+	+	+	++	
July 2, 1913	+	+	+	+	+	++	Calved November 28, 1913.
July 5, 1913	+	+	+	+	+	++	
July 7, 1913	+	+	+	+	+	++	
July 27, 1913	+	+	+	+	+	++	
Sept. 3, 1913	+	+	+	+	+	+	
Sept. 11, 1913	+	+	+	+	+	+	
Sept. 24, 1913	+	+	+	+	+	+	
Oct. 25, 1913	+	+	+	+	+	+	

* Slight.

Cow No. 79. A grade cow procured May 16, 1913. She calved normally June 10, 1913, and was bred June 30, 1913. She was fed 200 cc of a suspension of the Bang organism August 26 and September 25. At this writing, December 20, she shows no symptoms of abortion. The agglutination tests are as follows:

TABLE GIVING THE DATES AND RESULTS OF THE AGGLUTINATION TEST.

DATE OF DRAWING BLOOD.	DILUTIONS.						Remarks.
	1-10.	1-25.	1-50.	1-100.	1-200.	1-600.	
Sept. 24, 1913	+	—	—	—	—	—	First feeding August 26, 1913. Second feeding September 25, 1913 Still pregnant.
Oct. 25, 1913	+	+	+	—	—	—	
Dec. 8, 1913	+	+	+	+	—	—	
Dec. 26, 1913	+	+	+	+	+	—	

Cow No. 78. A grade cow procured May 16, 1913, and bred March 26, May 23 and July 8, after which she became pregnant. She was fed 200 cc of the Bang organism August 26 and September 25. Thus far there are no symptoms of abortion. The agglutination tests on this animal are as follows:

TABLE GIVING THE DATES AND RESULTS OF THE AGGLUTINATION TEST.

DATE OF DRAWING BLOOD.	DILUTIONS.						Remarks.
	1-10.	1-25.	1-50.	1-100.	1-200.	1-600.	
Sept. 24, 1913	+	+	—	—	—	—	First feeding August 26, 1913. Second feeding September 25, 1913 Still pregnant.
Oct. 25, 1913	+	+	—	—	—	—	
Dec. 8, 1913	+	+	+	+	+	—	
Dec. 26, 1913	+	+	+	—	—	—	

In the fall of 1913, we secured two pregnant cows, three years old, that had been bred and which came from a herd in which abortion has not been known. These were inoculated *per vaginam*. Before injection and at intervals afterwards, blood was drawn and tested by the agglutination method. After two months the tests remain negative.

Our work is being continued as is also that of Dr. Williams. The results obtained thus far, do not give assurance of the best method for artificially infecting cattle. They do show, however, that abortion can be produced by feeding the virus quite as readily as by intravenous inoculation. The quantity of virus necessary to produce abortion in susceptible cattle has not been determined. The negative results in certain of our experiments cannot be accounted for, except on the ground of immunity. We have had uniform success in producing abortion in pregnant guinea pigs by the subcutaneous inoculation with exudates from aborted cows.

The agglutination test has been applied to a number of the experimental animals. In our hands it has been more satisfactory than the complement fixation. The agglutination test shows a positive reaction following inoculation or feeding, and this continued for some months following abortion as shown in Nos. 62, 64 and 66. These animals will be kept under observation and tested from time to time in order to ascertain how long the agglutination reaction will continue.

ELIMINATION.

The time in the course of the disease when the specific organisms escape from the infected cow, prior to the symptoms of abortion, has not been satisfactorily determined.

The elimination of the abortion organism after the expulsion of the foetus has been the subject of much study. M'Fadyean and Stockman found that the elimination through the uterine discharges was complete in six weeks after abortion had taken place. This indicated that after six weeks had elapsed the cow was free from the organism and possibly possessed a certain amount of immunity against subsequent infection. In our studies one cow was slaughtered sixty days after abortion and carefully examined. The Bang organism was procured in cultures from the contents of the uterus.

Zwick and Krage found that in two goats inoculated subcutaneously and one intravenously the organisms were eliminated in the milk. They appeared in the milk from the intravenous and one of the subcutaneous cases, almost constantly for a period of thirty-three days.

Schroeder and Cotton tested 77 samples of milk from 31 dairies and 8 of the samples derived from 6 different dairies were found to be infected. In another series they examined 140 samples from 4 dairies of which 22 samples were infected. Of the 217 samples nearly 14 per cent. contained the organism. Smith and Fabyan also found it in milk. Fabyan, Schroeder and Cotton report its elimination with the milk for months after abortion. Surface states "It is certainly very probable that the abortion bacillus enters the mammary gland *through the walls* of the blood vessels."

The only channels of elimination thus far determined are (1) genital tract and (2) udder.

DIAGNOSIS.

The discovery that infectious abortion is a specific disease defines somewhat clearly the procedure necessary for its detection. The principle to be observed is that the virus of the disease must be kept away from the herd or if certain of the individuals are already infected, they should be removed from the others before the organisms escape. With infectious abortion, as with tuberculosis, the animals may be infected and yet give no indication of that fact. As the evidence concerning the time in the course of the disorder that the organisms are eliminated is indefinite, it is very important to detect the infected individuals as early as possible and place them where they are not in danger of spreading

the virus to uninfected cattle. Although there are still many uncertain factors, the present knowledge tends to impose the larger part of the responsibility of preventing infectious abortion upon the detection of the individuals about to abort and their separation from the uninfected ones.

The diagnosis of a specific infectious disease, where its symptoms are not pathognomonic and where post mortems cannot be made to determine the presence of characteristic lesions, must be made by finding the specific organism producing it or by some specific reaction. With abortion infection, the premonitory symptoms are usually brief in duration and there are no lesions in evidence until the abortion occurs. It is impossible, therefore, to pick out by means of physical examination cows that are infected, until the period of incubation has practically passed. It does not seem to have been demonstrated that the specific organism can be detected in the uterine discharge until just before and following abortion. The diagnosis, therefore, must be made from some specific reaction of which four have been described.

Abortin test. Abortin is a material analogous to tuberculin, made from bouillon cultures of the abortion organism. It resembles tuberculin in the method of its preparation. It was first used by M'Fadyean and Stockman. They found that it gave a satisfactory reaction consisting in a rise of temperature of from two to four degrees F. in their experimentally infected animals. They found that in a large percentage of cows that had already aborted it produced a reaction. In our experience, abortin has not given satisfactory or uniform results when applied to cows that had aborted or to those that had been infected artificially with the organism. It is possible that our abortin was made from cultures not suited for its preparation. It is stated that all cultures of the tubercle bacterium will not produce satisfactory tuberculin and it is not unlikely that the discrepancies between our results and those of the English writers may be attributed to the cultures. So far as we can ascertain, however, abortin has not given trustworthy results in picking out infected animals. Belfanti did not secure satisfactory results with abortin. He found many discrepancies between it and the agglutination test. Zwick and Zeller and also Meyer and Hardenbergh did not find it to be reliable. Mohler

and Traum state that the abortin made in the Bureau of Animal Industry laboratory was not as reliable as either of the sera tests. Giltner called attention to the weakness of the abortin test as a diagnostic agent. He believes, however, that it should be given a fair trial. Brüll obtained a temperature of 41.3 degrees C. with it. The normal temperature was restored in from fourteen to sixteen hours. He considers it an unsatisfactory test.

Precipitation test. Szymanowski tried the precipitation test for diagnosing infectious abortion. He used the serum of normal and naturally infected cows. The agglutination test was used as a check on his method. The results obtained by the precipitation method were unsatisfactory. This is the only report on its use that has come to our notice.

Complement fixation test. In the summer of 1908, one of us (Moore) was privileged to spend a little time with Sir John M'Fadyean and observe him carry out the complement fixation test for infectious abortion. At that time M'Faydean was enthusiastic in its favor. The time required to make the test and the dangers of error, especially where one is not making it continuously, are so great that the method seems to have been abandoned by the Department Committee on Abortion as a method for detecting infected animals.

Holth and Sven Wall working simultaneously in Jensen's laboratory in Copenhagen were the first to publish the results of the application of the complement fixation test for the diagnosis of infectious abortion. As the result of their investigations of this subject they recommended the combination of the complement fixation and the agglutination tests for the diagnosis of infectious abortion. They concluded that this combination was a reliable method for diagnosis. They considered the complement fixation the more reliable of the two. Belfanti and Zwick also report favorable results with the use of this method.

Larson following the work of Holth and Sven Wall reported the results of the application of this method for detecting infected cattle in this country. He stated that this is a reliable method for the diagnosis of abortion and further that all animals do not contract the disease even if within an infected herd and living under the same conditions as those which become infected. An animal

may react positively, indicating that she has at some period been infected and yet may not abort.

Hadley and Beach consider the complement fixation to be as delicate and accurate as any of the biological tests. They also emphasize the fact that it does not distinguish animals harboring the organism from those that are immune. They state further that "practically this makes but little difference, for the infected and immune animals can be isolated together with impunity." In a later publication they report 411 animals tested of which 135 or 32.9 per cent. gave positive reactions.

Surface found the complement fixation more reliable than the other specific tests. He states that this test "will not distinguish between cows which have become immune to the disease and those which have an active infection. Consequently all reacting cows will not abort. It may be said that all reacting cows are or have been infected. Nonreacting cows are not infected and are not immune."

Mohler and Traum used the complement fixation test with good results. They conclude that a positive complement fixation and agglutination test does not prove whether or not the animal is infected, and is going to abort or has been infected and already aborted. They state that complete fixation of complement with serum in quantities of 0.02 cc or less should be considered as positive. They found in a few cases that the bacteriolytic antibodies are probably formed later than the agglutinins. Our experience confirms the last statement.

Surface in a later publication pointed out the interesting fact that the amboceptor of contagious abortion was present in the blood of twenty-nine of forty-three guinea pigs killed for complement in making the fixation test. In another article he states that there is an inhibiting effect of excess cow serum in complement fixation with infectious abortion. In other words he found that by varying the amount of the serum of the animal tested he could obtain strong positive reactions using 0.8 cc of serum. If he decreased this amount, for example to 0.08 cc, the reaction was negative. Further he found that if the amount of serum was further decreased to 0.0008 cc the reaction again became strongly positive. The inhibiting effect of excess cow serum varied in a marked degree in the nine animals tested.

While studying the complement fixation for the diagnosis of contagious abortion in the summer of 1912 we observed the same phenomenon. It was our opinion at the time that it was due to the presence in cow serum of a substance called by Bordet and Strengé "Conagglutinin." This substance acts in the presence of the complement as a haemolysin for sheep corpuscles.

Thomsen, working in Jensen's laboratory where Holth and Wall did their work, found that if the serum of animals is inactivated (heated at 56° C. for 30 minutes) the results are unreliable. That is, in the sera tests for contagious abortion in cattle, the inactivation of the serum for the complement fixation tests is not only unnecessary but probably injurious. Sven Wall and Holth obtained their results with inactivated serum.

An analysis of the results obtained by the complement fixation method indicates that when a positive reaction occurs the animal is or has been infected with the Bang organism. A positive reaction does not indicate (1) whether the animal has aborted or will abort and (2) whether or not the animal is eliminating the organism.

The complexity of the method itself, the additional complications noted by Surface and Thomsen and the fact that a positive reaction does not give definite information as to whether the cow is infected and may abort or has been infected and already aborted seem to render this method of diagnosis of little practical value in the control of the disease.

Agglutination test. Since Widal in 1896 pointed out the value of the agglutination test in diagnosis it has been tried on nearly every infectious disease. Its value in a given disease seems to rest on the fact whether or not specific agglutinins are produced. In typhoid fever in man and glanders in horses, the method has a distinct value. Early in their work M'Fadyean and Stockman applied it to contagious abortion. They have done much experimental work with this method of diagnosis. They tested 535 presumably healthy cattle of which 526 gave no reaction when tested in dilutions of not less than 1 in 50. In nine animals, some agglutination occurred with dilutions of 1 in 50. Six agglutinated in dilutions of 1 in 100 and 2 gave reactions in dilutions of 1 in 200. In the test applied to 127 animals which had actually

aborted or which came from herds in which cases of abortion had recently occurred, some agglutination was produced by the serum in 62 cases. Of these 50 gave complete agglutination in dilutions of 1 in 50 or weaker and the remaining 12 gave a partial agglutination of 1 in 50. Only 8 agglutinated in dilutions above 1 in 400. After going into detail, relative to the difficulties in the use and interpretation of their results, they state regarding it: "It deserves to be adopted as the method of diagnosis which is the most generally applicable in suspected cases of contagious abortion." They make this very significant statement in reference to the interpretation of the reaction, "It is clear that a positive result of the agglutination test does not justify the conclusion that the animal in question will abort or even that it is at the moment infected with the abortion bacillus. On the other hand, the observations already made appear to warrant the conclusion that a high agglutinative power denotes present or past infection." They call attention to the long presistence of the agglutinin in the blood after abortion or parturition and presumably after complete recovery from the infection.

M'Fadyean, Sheather and Minett find that "in animals in which the result of the agglutination test is negative three weeks after the attempt to infect, it generally remains negative and indicates that the animal has not become infected." They found that the complement-fixation and agglutination tests were positive in from 7 to 21 days after infection. Surface considers an agglutination in dilutions of 1 to 100 or higher as practically certain evidence of infection. He does not feel that this method should be used alone for diagnosis. This latter statement agrees with the findings of Holth and Wall.

Brüll found that the serum from healthy cows agglutinated the abortion organism in dilutions of 1 to 32 and that from cows infected with the organism agglutinated in dilutions of from 1 to 120 to 1 to 16,000. He considers a reaction in a dilution of 1 to 64 as doubtful. The agglutination test may show an increase of agglutinin as early as the first month of pregnancy in an infected animal and she may not abort for two years. Brüll believes the agglutination test to be very reliable.

Zwick and Zeller report that the agglutination and complement-

fixation tests are a great help in the diagnosis of infectious abortion. Animals which have aborted show agglutination reactions between 1-100 and 1-10,000 and complement-fixation reactions of 0.01-0.001. The infected animal will continue to react for a long time, months or years. The results obtained by the complement-fixation and agglutination tests show whether or not the animal has been infected. A positive reaction in a pregnant animal does not necessarily mean that she will abort. She may calve normally.

Grinsted employed this method of diagnosis in detecting animals infected with the abortion bacteria.

All those who are here reported as using the complement-fixation test employed the agglutination test as well.

A consideration of the results of those reporting on this method of diagnosis together with our own experience confirm the conclusions of Mohler and Traum, who state: "In over 400 cases the agglutination test failed to show positive results in only one case where a positive reaction was ascertained by the complement-fixation test, while conversely the latter test failed in four cases which were positive to agglutination, indicating in the latter tests that the agglutinins probably appear earlier in the infection than do the bacteriolytic antibodies. In view of these results, it seems from our experience that the agglutination test alone, which can be carried out very readily with inexpensive apparatus and requires no great amount of time owing to the simplicity of the technic, would appeal to all interested parties, and only in doubtful cases would it be necessary to refer to the more complex complement-fixation test. A positive reaction to complement-fixation and agglutination tests does not prove whether the animal has aborted or is going to abort, but it does indicate that the animal is at present or has been infected with *Bacillus abortus*."

A negative reaction in our experience does not assure one that the animal will not abort in a few days. Illustrating the point, is heifer No. 31, tested by one of us (Fitch) and reported by Williams. This animal was inoculated with the Bang organism May 20th. The blood at that time gave a negative reaction. She was tested again on the 9th of June with a positive reaction (1-600). The test was repeated on the 21st of June and the 25th of July with similar results. Beginning with the 13th of August the

agglutination title decreased until the 25th of October, the blood of this animal failed to react in dilutions above 1-50. She aborted and was killed for the purpose of examining the uterus October 31st. Blood drawn just before slaughter failed to react in a dilution of 1-50.

TREATMENT.

M'Fadyean and Stockman inquired into the possibility of treating animals, after they had become actually infected. They employed heated cultures of the abortion organism. In two of the three animals thus treated, they seemed to succeed, while the third aborted in about the usual time after infection.

Nuesch-Flawyl following the recommendation of Bräuer-Sachsen, injected subcutaneously 2 per cent. carbolic acid, extending the use of this agent in the treatment of the infection to its administration by mouth. He gave from 1 to 1½ liters of a 1 per cent. solution at one time. This was given daily for from five to ten days. It seemed to be satisfactory.

Taylor maintains that carbolic acid, either fed in solution or given hypodermically, seems to be a specific against abortion. He states that cattle will eat as much as 750 cc of a 4 per cent. solution daily. The explanation of the action of the acid is not made in the publication, but Taylor has stated to one of us (Moore) that he believed it to be because of increased phagocytosis, stimulated by the carbolic acid. This remains for confirmation.

Wyss reports the subcutaneous injection of carbolic acid in several cases. His results were variable. Reynolds recommends the use of carbolic acid, while MacNeal and Mumford find that it is useless. It should be stated that the so-called Roberts anti-abortion serum, according to the analysis made by the United States Department of Agriculture, consists of 98 per cent. of water and the remainder of Phenols (carbolic acid), oil of cloves and a very small proportion of what appeared to be some form of vegetable matter.

De Vine reports that there are no reliable data relative to the value of carbolic acid in the treatment of abortion. However, a number of veterinarians have reported somewhat favorable results from its use.

Rich has recently advocated the use of methylene blue as a

possible remedy for contagious abortion. He found that methylene blue was a strong germicide for the abortion organism. Rich reports his results after trying it on four herds in all of which abortion had been prevalent. At the date of his writing, eight and one-half months after the inception of the work, ninety-two cows in all stages of pregnancy had been treated. They had all reacted to the agglutination test and but one of the animals had aborted, fifty-six had calved at full term and thirty-five had not yet freshened. The methylene blue (medicinal grade) is given in doses of from ten to fifteen grams, preferably in capsules night and morning, early in pregnancy, for seven days. The same treatment is repeated at four-week intervals during the period of gestation.

IMMUNITY.

The immunization of cattle against infectious abortion has been the subject of much study. Observations pointed to an acquired immunity after from one to three abortions. Williams attributes the phenomenon that older cows suffer less than young ones from abortion to a natural age immunity. M'Fadyean and Stockman were unable to secure any evidence that natural immunity to the abortion organism is possessed by any individuals of the bovine species. They carried out several experiments for the purpose of producing immunity. Their results were encouraging and with a few animals they seemed to be positive.

More recently, Schreiber reports good results in the production of immunity with an extract of the Bang organism. He points out also the necessity for great care in cleanliness and thorough disinfection.

Wyss reports good results with the use of Schreiber's lymph in fifteen cases. Two of these calved normally and the duration of pregnancy was not completed in the others.

Mohler and Traum conducted some experiments in the production of immunity by the use of killed abortion bacteria injected into the animals in various ways and also given by mouth. Their results on a small herd were not satisfactory but their experimental work includes over 250 cows in different herds. They have found that cows rarely abort more than twice or three times, after which they develop a tolerance or immunity to the infection.

Giltner tried to immunize cattle by injecting them with cultures of the organism but without satisfactory results. He also used abortin which contained killed abortion bacteria. He found that neither the injection of the cultures nor the abortin produced ill effects.

Holth has called attention to the three products of the Bang organism used in the treatment of abortion, namely, *Protective lymph* against the infection by Schreiber, in Landsberg; *Bacterial extract* of Piorkowski in Berlin; and *Amblosin* by Lucius and Brüning Höchst am Main. They did not seem to give much promise as prophylactic or therapeutic agents.

From his experience with rabbits, Holth concludes that the first two may be of practical value but the amblosin does not contain sufficient immunizing bodies.

Hesse used Piorkowski's extract or lymph. He found that animals treated with it did not abort. He employed three immunizing doses of 10 cc each. The first injection was given in the second month of pregnancy, the second dose in the fourth month and the third and last in the sixth month. In the preparation Piorkowski states that he used anaerobic cultures of the Bang organism.

Bang carried out many experiments for immunizing cattle against abortion with both living and killed cultures. His results were in part favorable and in part unsatisfactory. He considers the best method to combat the disease is isolation and disinfection.

Olaf Bang reports a large number of immunizing experiments with various serums and vaccines made by veterinarians, in Denmark, not reported in our literature. As in the experience of others, the results recorded were variable, some being favorable and others not.

Williams tried a vaccine on a herd of eighteen heifers in their first pregnancy with a result of 91 per cent. of abortions, dead calves and premature births of the eleven pregnancies terminated. He also reports the results of this vaccine in two other herds, in one there was 15 per cent. and in the other 74 per cent. abortions.

CONTROL.

Surface considers the best method of controlling infectious abortion in a herd is the isolation of the aborting cows before they

abort. These may be detected according to the author by means of the complement-fixation and agglutination tests. He states that it is further possible to isolate those infected animals which may not abort but which may serve to spread the disease. If every purchased cow was tested before admitting her to the healthy herd, the introduction of the disease could be prevented. Since some cows may be infected and still carry their calves to full term, the delivery of a living calf is not sufficient evidence that the cow is not infected.

Zwick and Zeller conclude that official regulations would be of little value in the control of this disorder. They believe that its suppression rests with the intelligent action of the animal owners.

Bang considers that the control of this disease will be accomplished by thorough disinfection and isolation.

Reynolds recommends isolation and disinfection. He gives the following instructions relative to the management of abortion in a herd. He does not give the results of their application: "Non-pregnant females over one year of age which have not recently aborted should have one internal disinfection (a) and one external disinfection (b) daily for four weeks and thereafter twice a week for four weeks more.

"Pregnant cows should be disinfected internally (a) once a week until within a month of calving. Disinfect these externally (b) twice a week until they calve and give carbolic acid internally as directed.

"Cows that have recently aborted should have the womb irrigated, using a gallon or more of warm solution (a) daily for a week; thereafter once a week for a month. This is for all cows that have aborted and are to be saved for breeding. In such case, the afterbirth and all discharge must be deeply buried or burned."

MacNeal and Mumford report that "Experience in connection with the beef cattle herd at the Illinois Agricultural Experiment Station with the methods of isolation, careful disposal of infected material, cleaning and disinfecting of infected stalls, antiseptic irrigation of the genital passages of cows which had aborted, and antiseptic irrigation of the bull before and after service, together with the use of a special bull for heifers and clean cows has been very satisfactory."

Williams' method of procedure is as follows: "At present we are advising the disinfection as far as practicable of the genital organs of both sexes for a few weeks prior to breeding, to be continued after breeding until the animal has conceived, applying the disinfectants chiefly to the vagina and vulva of the female and to the sheath and penis of the bull, placing special emphasis upon virgin heifers in order to guard their first pregnancy. Naturally we include sterility in any program of sexual hygiene, palpate the ovaries, oviducts and uterus per rectum and apply such therapeutic measures as each individual may demand, including disinfection of the uterine cavity where advisable.

"Clinically, in several valuable herds, our results have been highly encouraging wherever our plan has been carried out faithfully, but there is only a minority of owners and herdsmen as yet willing to go back ten months or more prior to expected calving to increase the security of normal parturition. Sexual hygiene is not a sure cure, it has none of the glamour of a panacea, or impudence of quackery. It is not new, some of its fundamental laws having been promulgated by Moses, for the human race. It will not prevent all abortions or sterility. If applied intelligently and conscientiously it does reduce the losses in valuable herds very greatly and at an expense and labor which brings it well within breeding economy. Detailed data upon the efficiency of this plan are not yet available and only a general statement can be made."

As the means of disseminating the virus seem to be limited to the vaginal discharge, the milk of certain cows that have aborted and infected bulls, it is possible that cows after aborting and bulls that have served infected cows may continue for a considerable time to eliminate the organisms. It is probable that certain animals that have been infected may continue to be spreaders. The statements relative to these means for disseminating the virus are somewhat presumptive as positive data are still very meager except the fact that the milk from cows that have aborted frequently contains the Bang organism for a considerable time.

It is clear that the method for preventing contagious abortion or controlling it after it has appeared depends upon the life history of its cause. If the Bang organism is widely distributed in nature, the prevention of abortion rests in immunizing the ani-

mals against it. On the other hand, if it is a specific pathogenic organism and all cases of abortion come directly or indirectly from infection from previous cases, its prevention and eradication seem to be within our power. The present knowledge supports the latter view.

SUMMARY.

A study of the results of the various investigations that have been reported on this disease shows that certain definite facts relative to the nature of infectious abortion have been determined. These are:

1. Contagious abortion in cattle is caused by the microorganism first isolated by Bang and Stribolt and known as *Bacillus abortus*.

2. This organism originally described by Bang as an anaerobe, has been found on later investigations to grow readily under aerobic conditions after two or three generations of cultures. Various methods have been described for its isolation. Different strains of this organism vary in their ability to adapt themselves to artificial cultivation, in reference to media and their gaseous environment.

3. The abortion organism gains entrance to the bodies of the cows through the genital and digestive tracts.

4. The effect of the Bang organism on cattle is to produce abortion. Some animals due to their resistance or immunity are not affected by it. Guinea pigs inoculated with certain strains develop lesions in the liver, spleen and other organs except muscle. Pregnant guinea pigs usually abort.

5. The Bang organism is eliminated from infected cattle through the uterine discharges immediately before and after abortion and in certain cases with the milk.

6. It is impossible to state from the results of any of the known methods (physical examination, abortin, agglutination, complement fixation and precipitation) for detecting infected animals whether or not abortion will occur in the cows tested.

7. There seems to be no efficient treatment. Many remedies have been and are being tried with varying degrees of success. With our present knowledge of the disease, no specific procedure for the control can be recommended other than rigid hygienic and sanitary measures.

A careful study of the findings in connection with the nature of infectious abortion and the various methods that have been proposed for its treatment, prevention and control show that further definite knowledge will have to be acquired before specific methods that will be effective in its suppression can be recommended.

This additional knowledge can be obtained only through the co-operation of veterinarians and cattle owners, in conjunction with laboratory workers, in accurate observations of the conditions under which the disease occurs and spreads. The additional information that is necessary in order that we may successfully combat this affection seems to rest in accurate answers to the following questions:

1. To what extent does the infection take place: (1) By way of the genital tract (through the agency of the bull, douching, vaginal explorations, etc.)? (2) By way of the digestive tract (through food which has been infected by uterine discharges, milk and feces)? and (3) Are there other channels of natural infection?

2. Does the Bang organism have a saprophytic existence? Are we dealing with an organism that exists widespread in nature, ranging from a purely saprophytic to a highly pathogenic existence, or are we dealing with an organism that is confined to the infected individual and material contaminated by it?

3. To what extent are the sequelae of infectious abortion, such as retained placenta, metritis, pyometra, salpingitis, ovaritis and cystic ovaries caused by the Bang organism?

4. Is it possible to devise methods by which we can determine: (1) If an animal is infected and will abort; (2) If an animal that is infected will not abort; (3) If an animal that is infected and does not abort is a spreader; and (4) If there is an immunity to this disease, and if so (a) is it due to age or (b) to previous infection?

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Since this report went to press an exhaustive article by Schumann and Hieronymi has appeared in the *Archiv für wissenschaftliche und praktische Tierheilkunde* Bd. 40 (1914) S. 193, on the Granular venereal disease, sterility, and contagious abortion. Their conclusions do not materially differ from those set forth in this article.

MR. HUSON: Mr. Akin, of Glens Falls, has kindly consented to talk to us a little while in regard to the conditions under which horses are bred in France and Belgium. Mr. Akin.

DRAFT HORSE CONDITIONS ABROAD

ELWOOD S. AKIN, GLENS FALLS, N. Y.

I was glad to learn when I arrived in New York, a few days ago, that I was in time for this meeting. The New York State Breeders' meeting is one bright spot in each year's work for all of us who are studying the great problem of improving our farm animals. There are a few things I noticed on my recent trip abroad that I think may interest some of you.

You of course all know that the size and quality of the best specimens of the different draft breeds have not been brought

about by chance, but by selection of the best sires and by good feed and care. The tendency of the draft horse to deteriorate when neglected can be seen on many American and some European farms. There are some 50 different breeds of horses in Europe. The pre-eminent location of European breeders has made it possible to continue their breeding operations for many years, in certain lines, the son taking the father's place.

There is usually only one breed considered in a given section. These sections are not as large as is generally supposed in this country; the Suffolk district, for instance, being only a few miles square.

There is an extreme variation in the values of draft horse sires and dams in Europe. In some of the leading draft horse studs in Europe there are many sires whose books are full from one to three years in advance, the service fees ranging in price from \$60 to \$100 by the season. In a community where the successful sires have stood for several generations great results have been produced. Types have been greatly influenced by the exporting trade, especially in France and Belgium, and we believe that these two breeds have been much improved through these influences — especially the Belgian horse. This breed has been refined, finished and the style and action increased to meet the demand in America for a more rugged, heavier-boned horse nearer the Percheron type. The Percheron horse, originally a 1500 pound, active, muscular animal, has been changed to heavier weights to meet the American demand, the weights at maturity now ranging from 1600 pounds to 2000 pounds. The change in colors from grays to blacks some years ago, in response to the American demand, was unfortunate, as this breed was not benefited, and now the gray Percheron is more popular than ever in this country.

The export trade has had practically no influence on English shires and Clydesdales breeds, and the small number of animals of each breed exported during the past season shows plainly the folly of this policy. The Scotch and English breeders are very proud of some of the undesirable features of their favorite breeds and seem not at all interested in the type and quality of draft horse the American demand calls for. I believe there were ex-



FIG. 224.— E. S. AKIN

ported to the United States less than forty Clydesdale horses in 1913.

The producers of the different draft breeds in Europe know practically nothing of the characteristics or quality of the other draft breeds, although their countries may adjoin or be separated by a narrow strip of water.

On some of the stock farms in this country may be seen the best specimens of practically every European draft breed. This gives our people a good chance for comparison and selection of animals suitable for their wants.

The extreme size of draft horses originated largely from Belgium. The size of horses gradually increased while the farms in that country have been divided until the average size is about three acres. This does away with the theory that large horses can not be used on small farms. Practically all horses used in Belgium are large.

Many small farmers work one horse weighing around a ton instead of a team, and they certainly do as much work as an ordinary team. The mare is usually worked on these farms and produces a colt each year, which is a valuable asset.

The all-purpose horse and the all-purpose cow in Europe have a different standing from those of this country.

The mares that till the soil and raise colts, when their usefulness is done, are fattened and slaughtered for beef. The city of Paris eats 50,000 horses each year and among some of the horse-raising people near the boundary of Asia mare's milk becomes a part of the family fare. So you can readily see that the all-purpose horse in Europe is much different from those classed as such in this country.

Speaking of using horses for food reminds me of seeing some 2,000 horses passing along the streets in Antwerp that had just been unloaded from the boats in from England. These horses were poor old cripples, blemished, blind and halt, that were to be slaughtered and used for sausage. You can see a dark-colored German sausage in the windows of some shops and restaurants in Europe and occasionally in the United States. I do not think many Americans care for horse in this form.

In Belgium cows do quite a large proportion of the work. Collars are turned upsidedown and they are worked with harnesses

like horses, from one to five according to the load. These cows give milk, raise calves, till the soil, and when their usefulness in other ways is ended they are fattened and slaughtered for beef. This gives you an idea of the European farmer's idea of a general-purpose cow. These cows are fed a large amount of beet pulp. This pulp is drawn from the factory and put in pits in the ground. If it tastes the way it smells the cow shows poor judgment in eating it. Their old stone stables are dark, damp and dirty and their condition would give any board of health in New York State heart failure. I wondered why we always had boiled milk with our coffee at breakfast over there, but after seeing their dairies I was quite willing to use the hot milk.

It seems strange to see dogs taking the place of many light horses in Belgium. Many small tracts of land are used for truck farming and the produce is distributed to nearby towns in thickly populated sections by carts drawn by from one to five harnessed dogs. These dogs work without lines and it is wonderful how much they can pull. The women usually deliver the garden produce, milk, butter, eggs, also a large part of the groceries and goods sold in the cities and towns. These dogs' loads range up to half a ton each.

Even the dogs are carefully bred from a utility standpoint and are worth for work \$20 each. In a country where many of the people are very poor, there are no fads in breeding and no animals are produced except with a view to the income they can produce.

There is one thing in particular to which I wish to call attention. In nearly every country in Europe where a special class of pure-bred live stock is bred, the man who keeps an excellent sire for the improvement of the breed is looked upon as a public-spirited citizen and a valuable asset to any community. They are known far and wide as improvers of live stock. They are given every encouragement. The Stallion Inspection Law is no new thing and did not originate in this country. I believe it originated in France many years ago, but France and Belgium go beyond the inspecting and discarding unsound and undesirable sires; they spend large sums of money in pensions and subsidizing, and I do not have to tell you what it has done for their breeds.

The Belgium government gives a pension to champion stallions

of \$1,200 if kept in service there for three years. In France, approved stallions receive \$50, \$100, \$150 and \$200 each season from the government. Recently the Percheron society selected eight Percheron stallions to be kept in France three years at \$500 per year. Those who patronize this stock feel that they owe their support to the individual who is doing so much for the breeding industry. Visit practically any section where live stock has been increased in value and quality, and the breeders will soon tell you of those who have assisted in this great improvement. Their names go down in history as individuals worthy of mention. The successful breeders fully realize that an outstanding tried sire is more than half the herd and that they must appreciate the efforts of those who maintain good sires. It is very common for a few breeders to associate themselves together and agree to furnish a certain number of females at a stipulated price, in order to encourage an outstanding sire to make a season in their community. A great many breeding centers expect to pay from \$1,500 to \$5,000 for the use of a good stallion during one short breeding season. The owners of good females in America will never develop their live stock as rapidly as it should be until they understand the value of better sires.

One thing that interested me very much was the effect the new stallion laws in the various states was having on the class of draft stallions and mares that the average American importer was buying. In former years the tendency was to bring over animals that would sell for the greatest profit, regardless of soundness or quality. Importers are now compelled to buy sound stallions, although unsound ones are much lower in price than in former years. The foreign breeder used to consider it good business to take advantage of any opportunity to load up any unsophisticated or inexperienced importer with culls or unsound stallions. Now many of the best foreign breeders are seeing the folly of hurting their reputation and the reputation of their breed of draft horses for the sake of a few dollars.

Mr. Tacheau, one of the largest breeders and dealers in Percheron horses in France, at a luncheon which I attended with several other French breeders, on his return from the last international, said, "Last summer in a bunch of stallions I sold Mr. Blank was one colt with sidebones half as large as my fist. I put

this colt in at only a few dollars above work-horse prices. At the international this importer showed this colt among others and was telling everyone that he came from the noted stables of Mr. Tacheau. Mr. Tacheau decided then that no more unsound colts would leave his farm for export.

The stallion laws of the various states are cutting out the culls and unsound, cheap, draft stallions abroad, but are making the high-class, desirable animals higher in price and very scarce. In France the coming season importers will either bring over younger animals or come back with one-fourth to one-half their usual supply.

While in Belgium I asked the Belgian Registry Society of Brussels to donate a set of gold medals and championship cups for the Belgian classes at the coming state fair, which they have promised to do.

MR. HUSON: Does anyone desire to ask Mr. Akin any questions on this interesting subject? If so, I will give you an opportunity very briefly; if not, that completes the formal program this afternoon. It is necessary that we close rather early this afternoon on account of the banquet this evening, which will be held promptly at 7 o'clock.

Professor Wing announces he would like to meet with the committee on resolutions here at the platform immediately following the adjournment. Mr. Duncan requested me to announce that the Shropshire Breeders' Association will meet here tomorrow morning at 9 o'clock. Are there any other announcements to be made of meetings of committees or other organizations? If so I will make them. The Draft Horse Club will meet in one of the rooms in the hall at 10 o'clock tomorrow morning. Are there any others?

MR. PEER: The New York State Jersey Cattle Club would like to meet tomorrow morning.

MR. HUSON: Mr. Brown reminds me that those who have not yet secured their tickets for the banquet may do so here at the desk immediately after adjournment. The banquet will be held in this room at 7 o'clock this evening. If there is no other business we will stand adjourned, to meet again at the banquet.

Meeting adjourned.

BANQUET, WEDNESDAY EVENING, 7 P. M.

MR. HUSON (as toastmaster): Although our program is somewhat mutilated by the necessary absence of two of the gentlemen we expected to honor us tonight, I assure you that the best of the feast is still before you. You will all regret with me the enforced absence of Lieutenant-Governor Wagner; he intended to be here this evening, but since dinner started I have received the following telegram from him stating his inability to be present:

“ALBANY, N. Y., *Feb. 4, 1914.*

“I regret that my duties here prevent my attending the banquet of the New York State Breeders' Association. It has been and will be my pleasure, while in public office, to help in every way I can to keep New York State in the lead agriculturally, to which leadership the Breeders' Association has so strongly contributed. I had hoped to suggest the thought to the Breeders' Association as to the wisdom of a permanent headquarters and the possible revival of a winter fair, such as was held at Syracuse a few years ago, and in that connection the possible use of the State Fair buildings at Syracuse comes naturally to my mind. So in sending my sincere regrets may I present that thought.

“ROBERT F. WAGNER.”

I know Senator Wagner greatly desired to be present here tonight. All of you who have followed his career know that he is the friend of agriculture in the state of New York, although he represents a city district. During his long period both in the Assembly and the Senate, his vote has never been recorded against a single measure, or a single appropriation, in the aid of agriculture in this state.

I also regret that I have to announce the absence of Mr. Wood of this city, but word comes to us that he is detained in New York and was unable to reach home in time for the meeting here tonight.

The speakers of the evening were:

Mr. W. W. Smallwood, of Warsaw, N. Y.

Prof. C. H. Tuck, of the College of Agriculture, Ithaca, N. Y.

Dr. John F. DeVine, of Goshen, Consulting Veterinarian of the State Department of Agriculture.

Mr. R. T. Wainwright, of Rye, N. Y.

Prof. H. H. Wing, State College of Agriculture, Ithaca, N. Y.

Judge John D. Lynn, of Rochester, N. Y.

THIRD SESSION

THURSDAY MORNING, FEBRUARY 5

Meeting called to order at 11:20 A. M.

MR. HUSON: We are a little late in getting together this morning. Some of us have been detained by reason of the meetings of some of the affiliated societies. It is necessary, however, that we should take up our program if we are to complete it, and the first thing this morning on the program is an address on "Practical Horse Breeding," by Lieutenant Shiverick, of Avon, whom I now have the pleasure of presenting to you.

PRACTICAL HORSE BREEDING

LIEUTENANT N. C. SHIVERICK, AVON, N. Y.

Horse breeding is practical when it becomes profitable, and as an industry which might be common to nearly all agricultural sections of New York State, horse breeding becomes practical in direct proportion to the number of persons who may profitably engage in it. Having thus expressed my views on the subject, it is manifest that this paper concerns itself primarily with the problem of making it practical, hence necessarily profitable for the persons who have one, two or any small number of mares, to breed them, to raise colts and to dispose of them advantageously. By thus becoming intelligently interested in horse breeding, they would realize the real economical value of their horses, and dispose of geldings, keeping only mares for their work animals and

breeding them to the best advantage,— that is, breeding them to produce the most valuable colt practicable, and at such a time as to least interfere with the business of the farm. The breeder who is extensively committed to the industry is usually independent of outside assistance; he provides his own stallions, develops his own markets, and creates a sphere of sufficient influence to protect his interests by legislation when necessary.

The farmer, on the contrary, to whom the breeding of his few mares is merely incidental to his real business, does not keep a stallion. Indeed he would be foolish to think of doing so. Neither has he time to devote to developing a market for his spare colts to the number of from one to five a year; and being interested in a small way only, and that merely as an incident, he does not concern himself with the business of seeking protective or other legislation with regard to horse breeding. In this he is wrong, because until such legislation is enacted as to permit only sound stallions to be used for public service, there will be unsound stallions used. This of course, as surely every owner of animals must know, is a most serious menace, since the tendency to unsoundness is transmissible from unsound sires and dams and their forbears. I consider the passage of a wise stallion law the most necessary step in the industry of horse breeding in the state of New York — a law so executed as to make it common knowledge that unsound stallions can not stand in New York State; to give assurance to every farmer that if there is a stallion standing in the vicinity of his farm, said stallion must be sound — nay even more, he must be free from a tendency or tendencies to unsoundness, and this knowledge should be possessed by horse buyers as well as by horse breeders. Surely buyers would be more apt to turn to localities where they would be guaranteed against buying the get of unsound sires, than to localities where they could obtain such knowledge only by personal investigation. The law should also provide for a just and sane but rigid annual examination of all stallions within the state, and certificates of registration should be furnished the owners of sound animals. The unsound one should be condemned and destroyed for the benefit of the horse industry, just as a horse with glanders is destroyed to prevent the spread of a bad influence, so that the mere living presence of a stallion in this state would be *prima facie* evidence of his soundness.

As to breeding, I see no reason why state registration should be permitted to any but pure-bred stallions, and all crossbreds should, in my opinion, be either castrated or share the fate of the stallion condemned for unsoundness. It costs no more to feed and care for well-bred stock than it does for poorly bred stock, and the chances for getting mediocrity are sufficiently great in the mating of pure-bred stock without increasing the possibility by using sires of uncertain lineage, when it is so well known that prepotency is generally the result of pure breeding.

Another reason for emphasizing the need of pure-bred stallions lies in the fact that probably the majority of mares to be served would be of unknown ancestry, although here too pure blood lines would lead to the more rapid development of a high standard throughout the horse breeding in the state. There seems to be an almost fatal desire on the part of most persons, who do not thoroughly understand genetics, to crossbreed in the belief that by mating this with that a fine foal will result, resembling both parents in their best points; but it so happens that the processes of nature do not conform to the wishes of breeders, but seem to delight in queer antics by producing offspring intensifying bad traits and modifying good traits, and it is only when the wise breeder mates pure breeds that he competes with nature's subtleties. Even here, however, the stud books show how completely nature dominates the situation. Hence to avoid, so far as practicable, the mismating of crossbred individuals, horse breeding should be made as foolproof as possible, by state legislation, by not permitting crossbred stallions to exist within the state. Of course there have been instances where breeders seemed almost cognizant of nature's intentions with respect to producing certain kinds of horses. I have in mind the late Major Dangerfield, who superintended the breeding of the late Mr. James R. Keene's race horses at Lexington, Kentucky. Major Dangerfield after nearly thirty years of deep study, of sagacious observation and stupendous patience, backed by enormous wealth, was able to make Mr. Keene's stables the world's greatest winning stables for three consecutive years.

How did he practically produce winners? First he bred his own stallions, and then he mated wisely, and it seems his instinct for this was almost second sight. Here is the reason for my refer-

ring to Major Dangerfield: He was successful, hence his methods were practical; the breed of horses was uplifted by his work, in that he bred to produce equine perfection as well as great race horses, perfection not alone in conformation but likewise in disposition. He would not breed unsound animals; no mare or stallion could have been fast enough to tempt Major Dangerfield to breed them if they had unsoundness of body or mind or temper or a tendency transmitting nature. He would not mate animals unless they were in perfect physical condition, and his success vitiates the possibility of anyone considering his methods overdone or crank-like. And it is only this same patient and careful study of individuals, and the care of them, that will produce for the farmer horses of excellence, be they of draft breed or other types.

The person who breeds but a few mares incidental to his real business has neither time nor inclination for exhaustive study of breeding, it becomes the plain duty of such organizations as the Breeders' Association of New York State to do sufficient careful studying for the small breeder, the result of which, embodied in proper laws, will make it practicable to raise the general standard of horses bred in the state and make it practicable, also, for the small breeder to raise on an average good, sound, worth-while horses, for which there exists a ready market. The farmer who does this incidental breeding must do his part if he is to share in the benefits of horse breeding, but his part is simple,—merely the application of his common sense in keeping his best mares and in giving the young things the proper start in good growth by judicious feeding. He should not be tempted to sell his best young mares, but should always look ahead and have a good young mare or two coming along to relieve his older ones; and here again I suggest that the state spread a protecting wing, by offering handsome premiums to owners of the best brood mares and owners of the best fillies, these premiums to be given as awards at the State Fair, not merely a lone first, second and third prize, but say twenty-five premiums of \$300 each for the best 25 brood mares and the same number for the best 25 fillies — these premiums to be given so as to be well distributed; that is, regulate against any one owner getting more than two premiums. Ribbons and a small prize of \$25 possibly could be awarded other mares he

might have worthy of notice. If New York State made an annual expenditure of \$1,000,000 for each of the next ten years to develop the horse breeding industry in this state as it should exist here, it would not be extravagance, it would be genuine economy. It is safe to estimate that not less than \$2,500,000 annually goes out of New York State for the purchase of horse flesh. Recently I was informed that less than 10 per cent. of the horses sold in the Buffalo market are New York bred animals.

By wise legislation some states, mostly in the West, have seen fit to protect their horse breeding industries, with results which are most gratifying. With the Chicago market selling 40,000 horses in 1912, you may be sure that Wisconsin, for example, benefited by the laws which have given that state high standing as one in which good horses are raised in numbers aggregating a large total. In 1913, the United States exported 28,707 horses, valued at approximately \$4,000,000 — to be exact, \$3,960,102 — and you may be certain that foreign horse buyers know the states where legislation assists in raising the probability of the horses of these states being sound. It is absurd that New York State should be dependent on other sources for its horse supply. Does it not strike you as pathetic that New York State farmers have to go West for their work teams; that carloads of western horses are brought into this state annually; that hunters are brought from Virginia, Canada, Kentucky and elsewhere; that saddle horses are brought from Kentucky, Virginia and Missouri, and elsewhere? — not a lone horse here or a pair or so there, but the great majority. New York has as good pasture land, as good limestone, water and other advantages for horse raising as other states, and this association should assist in bringing this industry to such a wholesome condition that the idea of taking horses into New York State would be as ludicrous as carrying coals to Newcastle.

In the matter of the state subsidizing the horse breeding industry by premiums, and an effort to have the State Fair show of breeding stock the greatest in the world, let me call your attention to the following, namely:

In England there are three societies, the Hunters Improvement Society, founded 1885; the Royal Commission on Horse Breeding, 1888, and the Brood Mare Society, 1903 — all acting in concert

with the object of improving the standard of light horse breeding. The first efforts made in connection with the Hunters Improvement Society were to secure the services of thoroughbred sires for specified districts, and in order to secure first class stallions a limited number of "Queen's Premiums" of \$1,000 each were offered. Since the formation of the Brood Mare Society in 1903, inducements in the way of premiums are offered to breeders to encourage them to retain their young mares at home. In 1904 the Dutch Government took 350 of the best Irish mares out of the country at a time when England was spending \$10,000,000 a year in buying horses abroad; hence we see the reason for the Brood Mare Society, and are not surprised at learning that its work has met with very real and gratifying results.

Strange as it may seem, the motor-driven vehicle has not forced down the price of horses; today draft horses, hunters and saddle horses are bringing higher prices than ever before. But the demand is certainly stronger than ever before, and seems constantly growing stronger, for well-bred horses of all types.

The quartermaster departments of the great military nations of Europe are sending horse buyers to the United States, because the supply of the home-bred product is not adequate to their demands. The United States has become actively engaged in the breeding of horses for army remounts, and the method pursued is, in general, that the Department of Agriculture shall provide stallions to stand in horse-raising communities to serve selected mares, the farmer paying no stud fee, but an option on the foal vests in the government with a provision which permits the sale of the colt by the farmer to outside purchasers, but in such cases the farmer must pay to the government a fee of \$25. To date New York State has none of the government stallions, while various other states, including Vermont, have them. But the Honorable H. G. Danforth, representative in Congress from this district, having discovered this oversight on the part of the Federal Government, has for some time past been making vigorous and well-timed efforts to secure for New York State its fair proportion of government stallions, and I understand that at least one or two other representatives from New York State have lent their assistance to the good work Mr. Danforth has

pioneered and is now prosecuting, in the nature of a very proper demand that New York State be supplied with its just proportion of government stallions. Mr. Danforth and his fellow-Congressmen who have taken up this matter are up against a hard proposition, and I commend it to the careful consideration of each and all of you, to either call upon the representative from your district to aid in this work or to express to your representative your satisfaction in the knowledge that he has your interest in this matter at heart and is striving to help the breeding industry of the state. At present the Department of Agriculture has no funds available for the purchase of more stallions, the department seems unwilling to withdraw stallions from districts where they have stood heretofore, and Congress seems loath to appropriate more funds for furthering this venture. By furthering I mean extending, and why is this, when in each instance stallions have been most enthusiastically welcomed into their various districts? It very probably is because of representations made by such organizations as the Saddle Horse Breeders' Association of the United States, organizations probably representing certain selfish breeders who are engaged, on a large scale, in producing horses, and on account of whom these organizations have venomously assailed and systematically attacked this breeding departure of the government, for the reason that these selfish individuals would like to continue in control of their local market for well-bred horses. This unreasonable control they see slipping from them, in the knowledge that, due to the presence of government stallions, each of preeminent blood lines, it will not be long before the small owners in their localities may have just as well bred horses for sale as the heretofore big local dealer, and to prevent this his organized association has tried to deprive the small man by influencing Congress to stop expanding in horse breeding.

Unfortunately politics have corrupted much that might have been good in this government work, by interfering with the department's selection of breed. The Department of Agriculture, for years anxious to get into practical instructive breeding but heretofore successfully fought out by Breeders' Associations et cetera, has had to give way to certain bad political influences

that this start might be made and its right to continue be obtained. Of course the breeding of Hackneys, Morgans, and the like, from the standpoint of the remount, is ridiculous, and for proof of correct methods resulting from huge annual appropriations not subject to political dictation, and from years of uninterrupted study, let us look at France, Germany, Austro-Hungary, and others, and there we will find the thoroughbred is supreme. Our mounted service requires nothing in the way of horses which is not required by their horses. It is to be deeply regretted that the Department of Agriculture can not benefit by the experiments and experiences of the great European nations. Instead the department is politically forced to conduct foolish experiments, proven such at great cost of time and money, merely to prove certain theories false for the disappointment of a few enthusiasts, and of the few most of them are uninstructed in the needs of service horses and of service practice.

The remount should approach the ideal hunter just as closely as funds for purchasing remounts will permit, and no one would ever think of using anything but a thoroughbred for a hunter sire. I do not have in mind the hunter of the show-ring, who sometimes has gone no further than to jump smooth bars, from excellent footing in a carefully prepared schooling-ring or show-ring; I refer to real, genuine hunters, horses which are not rich men's toys possessed of no merit, but horses which are bred and trained to follow fox-hounds going at full cry,—horses which will respond to most exacting service, keeping always a cool head, having the heart and the courage of a lion, the gameness of a race-horse, and the tractability of a good dog,—horses that will carry their riders safely over a four-foot fence at the crest of an uphill run after several miles of galloping over country where the going has been bad and the jumps high and stiff. The horses which can perform in this manner are the ideals of all cavalrymen. Such horses, with their good feet, quality, bone and substance, and with the dispositions and the conformation of hunters, will carry the trooper's pack and stand up under any kind of service which modern wars will require of mounted organizations, or service that any wars ever required. Consider how the Confederate cavalry on their thoroughbreds consistently whipped the

Federal cavalry until the South had fairly exhausted its well-bred stock.

Given wise stallion laws, worth-while premiums for mares and fillies of excellence, and the natural markets of the state as well as the outside buyers who would be attracted by such conditions to develop the breeding industry, the farmer, of course, on his part, must exercise constant care in a practical-working, common-sense way, in the general care of his brood-mares, their foals, colts and fillies. The necessity of feed and shelter is common knowledge, and no animal owner would expect a mare nurturing a foal, or expect a growing foal to further drain their vitality by seeking food and shelter under difficult conditions, and a weanling must be well sheltered, but never deprived of exercise and fresh air. These last two elements are as essential in the development and health of horses of all sexes and ages as shelter and feed, and the weanling must be fed and fed and fed, that he may early acquire the habit of growing, as today the market demands bigness of physical development in all kinds of horses. While feed and shelter, fresh air and exercise are most necessary in the case of weanlings, still these elements are of paramount importance in all stages of equine life.

Under such conditions of protection and understanding, with farmers entering into the breeding of horses with the zest of real interest, it would only be a few years before New York State would become, as it should, a truly great horse state.

MR. HUSON: I know we all feel under great obligation to Lieutenant Shiverick for his most excellent address. The next address will fit in this morning very nicely. I now have the pleasure of presenting Dr. DeVine, Consulting Veterinarian of the State Department of Agriculture, who will speak on "Some Common Diseases of Domestic Animals and Their Treatment."

SOME COMMON DISEASES OF ANIMALS AND THEIR TREATMENT

DR. J. F. DEVINE, GOSHEN, N. Y.

Mr. Commissioner, Ladies and Gentlemen: After such a splendid practical paper on the horse, as Lieutenant Shiverick has given us, I think it is apropos for me to discuss ailments of the horse.

During the meetings yesterday, last evening and this morning, I have talked to at least one-third of the people here on contagious diseases, such as rabies, tuberculosis, hog cholera and the like. I am quite certain that Dr. Moore and Dr. Wills have talked to the other two-thirds; therefore, I think I shall evade all those infectious diseases and attempt to enumerate some of the simple things that occur on the farm.

I appreciate the fact that I have a pretty exacting audience, and know if I say much about the horse I shall have to be careful as to how I say it, as there are so many experienced horsemen present. But there are perhaps some present who have taken to the farm and horse industry of late and who would appreciate some advice. It is not necessarily the farmer who always makes the great horseman, or the country boy who always makes the great farmer. We heard last night from Mr. Wainright some things that he has put in operation on his farm, rather late in life some might say, but I am sure his results would do credit to a seasoned farmer.

In beginning the discussion of the diseases of animals, it might be well to start with the colt. I recognize the fact that there are several breeders here that to enumerate to them the way to care for a mare in foal and the care of the new born colt, would be something perhaps that they already know. But again there may be others who have had little or no experience in these matters. Briefly, we think the mare will do best, as you know, if she has regular work or exercise. If your brood mares can not be kept at work of a reasonable kind, then they should have a roomy paddock, or, better, be turned to pasture; and when the colt comes, remember it needs perhaps more attention, more artificial aid, so to speak, than any other domestic animal. We like to see that the various organs are normal. Pay special attention to the intestinal tract. The little colicky pains the colt oftentimes develops ordinarily are not serious, but we are sometimes called to see colts that practical horsemen have been fussing with perhaps all day or part of the night with a little paregoric or castor oil, and still the colic has not been relieved. It is true that ordinarily these simple remedies with good nursing will relieve these intestinal irritations; but there is another condition that happens a little

oftener perhaps than is generally recognized, and that is a displacement of the bowels. It is scientifically termed *volvulus* or *intussusception*. This is a condition where the little bowels become twisted, or one part slips into the other, as if we turn the finger of a glove partly inside out. A very practical way of relieving this in most cases is by what we might term "high enemas."

Every veterinarian and even stockmen should have one of the latest improved stomach tubes and pumps, and by using this stomach tube and pump and gently forcing water into the bowel, at the same time raising the hinder part of the colt, we can oftentimes so dilate the bowel that the tube may be passed in several feet and water carried well into the bowel, which in turn releases the imprisoned part by dilation of the bowel. We notice relief from pain and complete rest as soon as our efforts have been successful. Another thing that horsemen sometimes overlook after they have given these little home remedies, is to see that the mare's udder is kept well milked out so that the little colt can not get too much to eat, for a period of 24 to 48 hours. Giving the weak intestinal tract rest is just as essential as other treatment.

A thing that came up at one of the Farmers' Institute meetings recently was relative to the infection of the umbilical cord at the time of birth. A certain dealer and breeder had said that it was wrong to tie the umbilical cord because there was a drip from the bladder that would be cut off. Unfortunately, this man knew just enough anatomy to be harmful to him. He was right about the opening to the bladder, but wrong about not tying it up. The communication from the foetus' bladder into one of the sacs or membranes that covers it in utero is supposed to close at birth, the same as certain other things happen at birth. The point to be kept in mind is that the umbilical cord must be tied antiseptically; we must be clean about it. We should be just as clean in this as a physician would be in tying the navel of a new-born child. If the cord has been ruptured before we have an opportunity to tie it with a clean ligature, it would be well to tie it pretty well up toward the abdomen and place the end of the already broken cord in tincture of iodine.

Assuming that our colt does well and is well nourished by the mother and gradually gets to eating grain, we see that it is housed

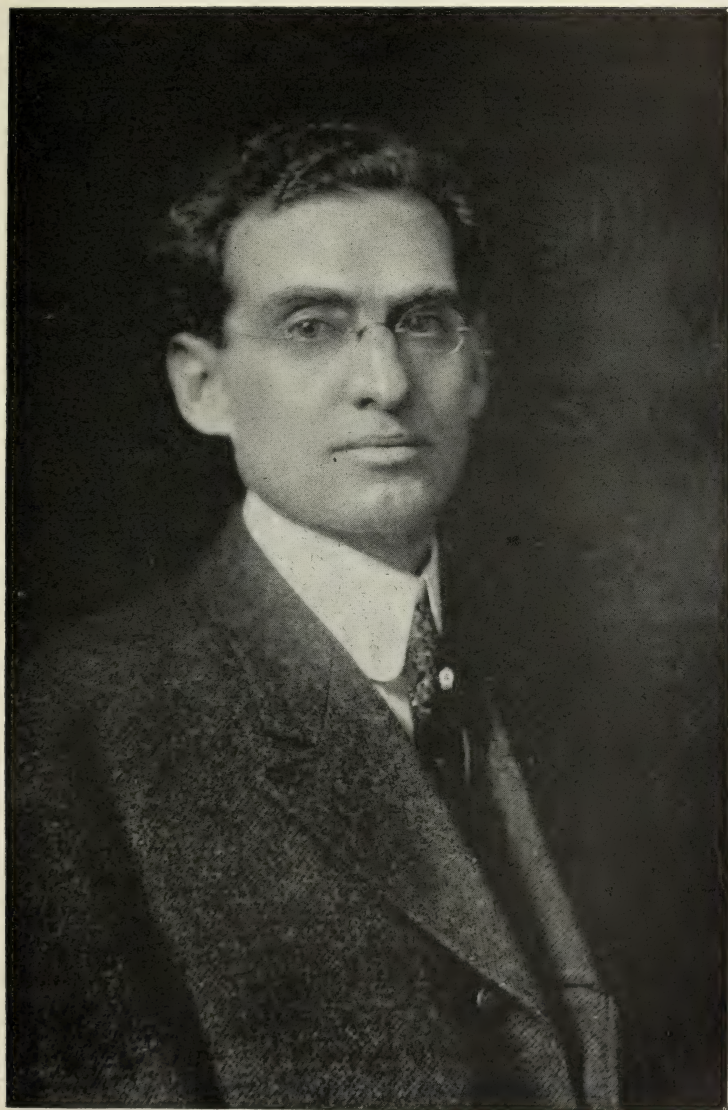


FIG. 225.—DR. J. F. DE VINE

from the flies during the summer time and that its little feet are kept properly leveled, and it soon reaches a period where its teeth are to be given attention. Some people argue that we need not give the colt's teeth attention. This would depend largely upon the class of animals we have to deal with. In the big, heavy horse the teeth do not need as much attention as the lighter nervous one. If we take a close-jawed, heavy-muscled horse of a high nervous type, we will find that the least bit of enamel or sharp point that strikes against the jaw will cause him to be bad tempered. This is not so with the phlegmatic loose-jawed drafter. We also like to remove the supernumerary or wolf teeth, as they are termed, not because there is any danger of making them blind — this theory is as antiquated as hollow horn or wolf in the tail — but for those horses we like to have carefully fitted and with a nice light mouth, the mouth that guides well, one of the very first things we do is to remove all objectionable irritants. Therefore, we remove these little teeth that are in the way of the bit and that are easily inflamed and make the mouth irritable. We do not do it in the old barbaric way of taking a chisel and knocking them out; we have them pulled out and have it properly and humanely done. Breeders recognize the fact that a four year form is usually the hardest year on a colt. This is so, and in a measure is due to the trouble they have in shedding their molars. Horses shed what we term the pre-molars, or the first three molars, just the same as they shed the incisors, and we sometimes notice the colt chewing his food and spitting it out again, all due to the fact that these little caps or teeth become partly loosened and catch in the cheek, and food and hay are packed under them and cause pain and annoyance. A few minutes' work of proper dentistry will remove this trouble and do more for the colt than he can do for himself in several months. By saying that the horse's teeth need attention, do not understand me to say that every horse's teeth need attention. Beware of the fakir who comes along the road and tells you that every one of your horses' mouths need attention. He wants your money and will be out of your sight as soon as he gets it. A man who will employ a traveling professional man ought to be fleeced. No professional man with ability or a conscience needs to travel the road and solicit trade. If he amounts

to anything he has a practice at home. But if the horse's teeth do need attention, there is not any one thing that will do more good than proper dentistry.

As to feeding and watering horses, we should keep in mind that the horse has the smallest stomach for its size of any of our domestic animals. It will not stand the changes that many of our other domestic animals will stand. Therefore, if you must change feed, always remember that you must change it very cautiously, always giving a smaller amount of the new food. It is the same when you put in new oats or new hay. If the breeder and the farmer would be more cautious about changing the feed, the veterinarians would have less to do in the treatment of colics, and it would be just as well, since there are many other things much pleasanter to do than to stand around and watch a poor horse suffer with colic. As to watering your horses, some people ask, "Should a horse be watered before he is fed, or after?" It does not matter if you will only do it consistently. Experiments along this line have proven that if we establish a custom it does not matter which way we do it. Any of you know that if you have been in the habit of watering your horses after feeding, if you offer them water before feeding they will not take it. It is simply a physiological custom that the stomach has established and it wants it that way. With regularity, good care, good housing, and good grooming, your horse ought to and will do well.

There are certain things that we should guard against today with horses the same as we would with pigs or cows. You know great care is being taken when purchasing animals, particularly pure-bred animals, to determine if they are free from tuberculosis, infectious swine diseases, etc. We should use the same precaution in examining our horses carefully before purchasing, as to glanders. Glanders is a very deadly disease in the breeding stable. It is often times very virulent in its character and not always easy to stamp out. Therefore, when we are examining animals as to their soundness, we should keep in mind glanders and farcy.

There are also some accidents and ailments that occur on the farm, such as cuts, colic, and the like, that every farmer and every stockman should be able to give at least first aid. Ofttimes

people become very excited if an animal cuts itself and they will run for some dirty cobwebs and stick them on, and later the wound festers, as they term it, and finally they may need the services of a veterinarian. If they had used a little better judgment at the time of injury, perhaps the wound would not have amounted to much. Always be very clean and do not use irritants on flesh wounds. If there is a great hemorrhage, ordinarily this can be checked by wrapping some cotton and a tight bandage around the parts, and then have your doctor come and dress it.

As to colic. There are different forms of colic — some colics that are preventable, some that are not. A change of feed usually develops a very dangerous form of colic, termed “acute indigestion.” If you find your animal has eaten an unusual quantity of food, or a moderate quantity of strange food, and develops pain and bloats, the quicker you can get expert service, the better. We know today that the thing to do in most of these cases is to tap the animal and let the gas out of the intestines, since when a great amount of gas accumulates in the stomach and intestines, the animal if not relieved will die either from shock due to rupturing of some part of the stomach or intestines, or literally smother to death from the pressure of these organs on the diaphragm and that in turn upon the lungs. If the stomach is considerably involved, the thing to do is to empty it by passing a stomach pump. This of course requires an expert, but actually works wonders in cases where it is indicated. In addition to relieving the cause, we sometimes add a little stimulant in the way of whiskey or the like.

The cause of another form of colic is an impaction of the bowels, due to dry, bulky food, and this oftentimes, while less intense in character, is more dangerous than its mildness at the beginning would indicate. Oils and cathartics are the agents to be employed to remove the cause in such cases.

We have other forms of colic, due to disease in the intestinal tract, particularly the blood vessels, and colics due to calculus (stone in the bowels). These forms of course are not under the control of the owner or caretaker.

Another thing which we notice so much among stockmen, is the way in which they drench their horses. Every now and then from

carelessness or brutality in drenching, we get a condition which we term "mechanical pneumonia." This can be avoided if proper precaution is taken in drenching the animal. You see some men put a rope in a horse's mouth and pull its head up as if they meant to pull it off, and then stick a big bottle filled with medicine in its mouth, and never take the bottle out until it is empty. Could you swallow what that big bottle in your mouth? Perhaps you can, but a horse can not.

Severe colics, particularly acute indigestion, sometimes brings on a condition that the doctor may be blamed for, and that is laminitis, commonly called founder. After an animal has a severe attack of colic, which is necessarily attended with great rolling about and pain, and is then allowed to stand in a draught and cool suddenly, on attempting to move the animal later we may find that it can scarcely back up or move about. This sometimes can be avoided by properly covering the animal as it begins to quiet and cool off, or by walking it gently about, but sometimes it occurs even with all these precautions. You know the idea used to prevail that if a horse was once foundered, it was never any good again, but we know now that if properly treated and taken in time, we can in most cases relieve the condition so promptly that the animal is as good as ever in every sense of the word. Whenever you have a foundered horse, do not deceive yourself by thinking the trouble is in his back because he can not back up, and waste time by rubbing magic liniments and oils on his back before sending for a doctor, but send for your doctor immediately, get poultices on the horse's front feet and place his feet in a tub. Your poultices may be bran or anything that will make a cushion to stand on and hold moisture. Fill the tub sufficiently to cover the feet well, with either very hot or very cold water, whichever you can properly attend to. If I go to a stable where there is a foundered horse and I feel that conditions are not right for the water to be changed often and kept warm, I then prefer to get a cake of ice and keep the water very cold. There is not much difference in the action between extreme heat and extreme cold, excepting that the heat relieves pain quicker and in case of founder, the animal will make greater progress the first few days. Therefore, I prefer hot water to cold water when I feel that it can be properly attended

to. The question is sometimes asked, "Should we remove the shoes?" Some veterinarians do and some do not. I think it is best not to remove them. My reason is that there is congestion in the foot and with the soaking it must necessarily expand or swell, and it is my opinion that with the shoe left on we are less liable to have a drop sole, as it assists to hold the junction of the well and sole in a position. When your veterinarian arrives do just as he tells you and do not listen to everybody's advice. If the veterinarian knows his business, it will only be a matter of a week or ten days before your horse is pretty well relieved, and in another short period he will have him at work for you again.

There are other diseases that need prompt treatment, and I would like to call your attention to one or two of them. For instance, lymphangitis, commonly called "Monday morning leg." The reason for calling it Monday morning leg, is that it usually occurs after an animal stands in the stable a day or two, like over Sunday or a holiday. Then we often find one of the legs, usually a hind leg, all swelled up. The common error is to think that the horse has injured the leg during the night, and then apply liniments and irritants. Liniments simply aggravate the condition. What you should do is to send for a doctor at once, as he can do more for you in the first twenty-four hours than he can in three weeks after the swelling of the leg has become organized. If called early, your veterinarian can get the bowels and kidneys active and do up the leg in hot packs, and in three or four days the pain will be sufficiently reduced so that the animal may be moved, and moving in this ailment is one of the most valuable aids in relieving the condition. We would not think of driving a horse that had a badly sprained leg, all swollen up, but we want to drive one with lymphangitis just as soon as we can move him, and then, of course, properly care for the leg after driving.

There is still another disease that needs equally as prompt attention, and that is what the older men used to speak of as spinal meningitis. We really do not see many cases of spinal meningitis. We do have epizootics of the so-called cerebro-spinal meningitis, but what the older men called spinal meningitis is usually azoturia. We usually see these cases on a Monday morning, or a morning after a holiday. It occurs in the well nourished, well kept horse

that is regularly worked for exercise and then stands in a day or two. The longer they stand in, the less liable they are to have it. The animal is then taken out and driven and feels fine and perhaps plays in the harness, and after going a little ways we notice that there is an unusual perspiration, or perhaps an increasing lameness in one of the legs — usually a hind leg — the animal knuckling over at the fetlock. A well meaning driver will immediately think of getting the animal back home. What they should do is to stop the horse right where it is, cover it up and keep it quiet. Every step taken after the disease begins to develop, increases the danger of paralysis and brings the animal nearer to death. I should rather treat one standing up in a snow bank than in a parlor after he gets down. If there is a shed or stable near by, lead the animal to it and put plenty of blankets on it, keeping it just as quiet as possible, and send for your veterinarian. This is one of the deadly diseases that is largely preventable by giving the horse bran mashes on Sundays and holidays, and by knowing the character of the disease and stopping the animal as soon as any symptoms are shown.

MR. HUSON: We will bring this session to a close. It will be necessary that we start our program this afternoon very promptly at 2 o'clock. The first address will be one of very great interest, "Community Interest in Live Stock," by Dr. Davenport, the Dean of the Illinois College of Agriculture. He has come here all the way from Illinois to discuss this very important subject with us, and I hope we will all be here promptly and that the room will be filled. His address will be followed by one of equal interest on "Market Horses," by Professor Gay, of the University of Pennsylvania. Following these addresses we will have the reports of the committees, including the committee on resolutions, that has been diligently at work since we assembled here yesterday, and I am sure will have something worth while to report; and also the election of officers. So you see the afternoon is to be crowded quite full, and it will be, I am sure, a very interesting session, and I hope you will all remain until the close. We will now stand adjourned until 2 o'clock.

Meeting adjourned.

FOURTH SESSION

THURSDAY AFTERNOON, FEBRUARY 5

Meeting called to order at 2 P. M.

(Professor Wing temporarily in the chair.)

PROFESSOR WING: I count it a favor, and a great pleasure, to introduce to the New York State Breeders' Association the foremost living authority on matters pertaining to animal breeding, Dean Davenport, and I have great pleasure in presenting him to you at the present time. Dean Davenport.

COMMUNITY INTEREST IN LIVE STOCK PRODUCTION

DR. EUGENE DAVENPORT, DEAN, ILLINOIS COLLEGE OF AGRICULTURE, URBANA, ILL.

If all the people of a community would agree to devote their principal energies to the production of one kind of live stock, reversing the present practice whereby, for the most part, each farmer owns and supports a different breed from that of his neighbor, a number of substantial advantages would follow:

1. The very discussion necessary to such a choice would serve to educate the people on the relative merits of the different classes and breeds of live stock. This of itself is valuable, because most men choose the live stock they shall keep more from habit or prejudice than because of any thorough study of the peculiar local conditions or of the respective merits of the different breeds.

2. It would promote the most serious possible study of the natural advantages and disadvantages of that particular locality for the various branches of the livestock business.

So it is that one man chooses Chester White hogs because they are white, and another chooses Berkshires because they are black, in this way obscuring the real merits of both breeds. Heavy Shorthorn cows are often put on hilly pastures and Jerseys raised where excessive amounts of coarse food must be consumed. Creameries are built when the conditions are about as favorable as for a sawmill upon a prairie.

3. The most obvious advantage of such a plan as I have indi-

cated is the market privileges that would accrue to any community that had acquired a reputation for fine stock of almost any kind. In such an instance the common laws of trade are reversed, and the buyer seeks the seller because he knows in advance about what he can find and that it is available in commercial quantities.

If a dealer can feel assured of picking up a carload of horses of a single grade in one community, every horse is worth more than it would be alone, because of that certainty and because of the saving of time and expense in getting a load together. I know a community which has a reputation for excellent mules, and this locality is eagerly visited by buyers. Everybody is familiar with the famous saddler industry of the blue-grass region and with its advantage to the breeders that have worked together to please the prospective buyer.

4. If generation after generation, old and young, men and women, combine their energies in this way, the actual knowledge of a particular breed or class of stock will ultimately become far greater than any man can accumulate within the limits of a single lifetime.

All the best canaries are bred in two little villages in the Hartz mountains. There the babies are practically born into the industry; they grow up in the atmosphere and almost literally inherit an expert knowledge of the business, which is nothing more or less than the combined judgment of many men based upon thousands of trials both successful and unsuccessful. No man can overestimate the value of such knowledge, which after one breed had claimed exclusive attention and care for a hundred years, would be no small asset to any community in the live stock business. Witness the Jersey islands as a good example, where a great breed has developed on a restricted area, as it could not have developed had all other breeds been represented upon the islands.

5. Manifestly all this would tend powerfully to uniformity of type because the repeated and continued discussion would of necessity result in a concensus of opinion on points of selection, care, and development. Accordingly the buyer can confidently expect to secure a more uniform lot than would be possible were he obliged to pick and choose from a wider range, involving un-

corrected individual ideals rather than well-settled community convictions as to which is the most useful type of animal.

6. The carefully molded type, reflecting as it would, not so much individual caprice as well wrought convictions, would result in substantial breed improvement at a rate far more rapid than is possible when each herd is limited to the judgment of one man and the duration of one life, in which case the work accomplished is largely undone by the successor, if not by the dispersion sale necessary to "settle up the estate," whereby the animals are scattered to the four corners of the country, clearly reducing their power for constructive breeding. While a great master can do much, the future progress of our best breeds requires a larger unit than the individual farmer working alone, soon to be overtaken by death.

7. Such united effort followed, as it is bound to be followed, by substantial results, is a powerful factor in building up community pride, as witness again the Kentucky trotting and saddle horse interests. It breeds friendship, loyalty, and honor, and is not to be overlooked as a means of promoting higher standards of living and higher ideals of business.

8. Such procedure is distinctly better for the small farmer, who has little place in the business as now conducted except he operates with inferior animals. Such small farmer may not count much in building up the interests of great breeds, but he is a powerful factor in the commercial world, for there are a great many of them. In the aggregate he keeps a large number of animals, mostly inferior because he can not, or thinks he can not, afford better; and there is some force in his contention because good animals really do cost more than poor ones.

If all the community should breed one kind of stock, this man would catch the spirit and become more interested than he is now when opinion is divided until, discerning the merits of many plans, he follows none, and "just keeps a few animals from habit." The sire is what stands in the way of progress with him, and in community breeding, sires are more available.

9. Community breeding would not proceed far or long until co-operative buying would begin and to the common advantage of buyer and seller. One man can sell and buy for a larger number

both better and cheaper than each can buy and sell for himself; besides the whole breeding business is weak at the selling end. Only the large breeder can afford to advertise to sell his young bulls, for example, and the young breeder with but two or three is practically shut out of the market. Nobody wants his produce, and it frequently costs him more to sell one well-bred bull calf than it is worth when sold.

We are probably not yet ready for many steps in real community ownership of live stock, though something has been done in company purchase and maintenance of stallions. Here the small farmer would profit by any plan that would put better live stock on his farm, whether he owned it or not.

The farmer is conservative and rightly so. He must proceed from the known to the unknown by short and easy steps lest he lose his business and his home. He can not, as in ordinary manufacturing, indulge in new and unusual expense, add the item to the cost of production as a "fixed charge," and in this way take it out of the consumer. He is in no condition either to fix the selling price or to hold for a better market. In general he must market when he is not engaged in production, and he generally needs the money from his produce to put back into his business with as little delay as possible.

The farmer is intensely individualistic above all other men; indeed, and fortunately perhaps, he will always remain so. I would not see him surrender this individuality and independence, but it is sometime supported as an expensive luxury.

There is no reason why every man should own all the sires he uses, nor is there any inherent reason why a company may not own and develop young sires to be later put upon the open market. A small farm is an excellent place on which to grow young bulls, for example, and whether owned by a company or by large individual breeders, they can in many cases be farmed out until two years of age and incidentally improve the stock upon the small farms as they develop into market condition.

I do not look for much development in real community or company ownership of live stock outside of sires for an indefinite time to come, and yet the farmer must soon learn methods of joint operation. Having learned some of the easier ones in other lines,

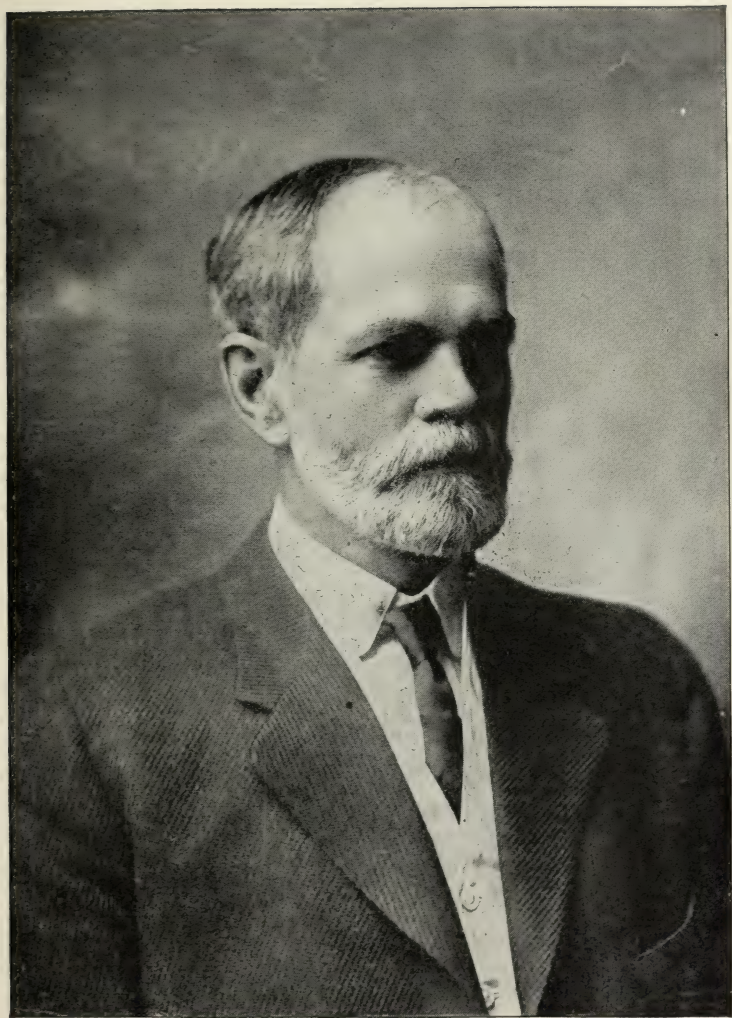


FIG. 226.—DR. EUGENE DAVENPORT

doubtless he will ultimately find many ways not yet in mind whereby he can facilitate the business of live-stock production by the better cooperation than in the past.

It is not enough that the farmer make money and be able to continue in the business. It is also imperative that the consuming public be well served. In this sense the whole community and all classes of people are intent that the live-stock business be organized and conducted along economical and effective lines.

The universal interest in live stock is not commonly appreciated any more than is realized our essential dependence upon domestic animals.

This dependence of man upon animal life is not limited to the direct service we enjoy. It is best realized in connection with periods of low crop yields due to drouth or other general causes of crop failure more or less widespread.

If population has increased to the point at which all the produce of the land is consumed by man, then a shortage means famine with death of many and weakening of others by starvation. If, however, we have at hand a lesser population and a considerable census of food-producing animals, we will in times of scarcity slaughter and consume a few more animals than usual, thus saving food both ways and clearing on animals rather than on man. In this way will our animals avert famine from our people and it may be confidently assumed that in the last analysis all classes of people everywhere, especially those of moderate circumstances, are directly dependent for happiness and perhaps for life upon the successful and generous development of animal husbandry.

We are now just emerging from a decade of general indifference to live stock. A new era is upon us. This revised animal husbandry will be supported along lines substantially new, and it is in every way advisable that in the readjustment every pains be taken to discover ways and means by which cooperation can be advantageously introduced into animal affairs. I suggest a beginning at the point of agreement as to some line of live stock in which a whole community can undertake to specialize.

We shall never do away with our large breeding herds in the hands of ardent and capable breeders. On the other hand, they will discharge but a fraction of the duty that the farmer owes the

community in the production and care of domestic animal life. Above all is needed now some plan of procedure that will enlist the energies and the cooperation of the small farmer, who must figure larger than now in our problem of feeding a rapidly growing population, which can not long take its three meals for granted as a dispensation of providence, like the sunshine and the rain.

PROF. WING: I am aware that it is a very delicate matter to attempt to say anything to further impress points that a speaker has made, especially when the address has been so able and practical as the one to which we have just listened. But I can not refrain from taking the risk to call your attention again what seemed to me a very important thought of Dean Davenport's, when he said that when our breeding operations become a part of our lives, then we shall truly be breeders.

We have another paper this afternoon on a very important topic, and when we have an important topic to discuss it stands us in hand, of course, to go to someone who has the information and the experience — who is able to give us information that shall be of use to us. And here again we are fortunate in this respect. Dr. Gay understands the horse business in every phase. He has lived in Iowa, where I suppose as many horses are produced as in any part of the country, and he has been in close touch for many years with one of the large consuming markets. I am quite sure that he will have something practical to offer us on the question of market horses. I have great pleasure in introducing Dr. Carl W. Gay, of the University of Pennsylvania.

MARKET HORSES

DR. CARL W. GAY, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA.

Mr. Chairman, Ladies and Gentlemen: The notion seems to have gone abroad that the present administration of agricultural affairs in New York State is especially interested in horse-breeding. Personally, I never have been on a program where such a large proportion of the time allotment was conceded to horses, as is done on the present program, and it is all extremely gratifying to one who is interested in this particular line of work,

not merely because it gives those of us who are interested an opportunity to express our views, but for more important reasons.

Professor Wing has told you that I am more or less in touch with the selling end. I try to keep as well informed as I can, and I admit frankly that the conditions that our dealers complain of most generally are not the fact that there is a dearth of buyers, but the fact that they can not find the horses to sell. I believe there is one very good reason for that. The activities of the smooth and very competent motor salesmen have created a condition where there is a lack of confidence in the horse business on the producing end, and there are many farmers who have stopped breeding horses on that account. When a great power like an association of this sort, in a great state, puts its stamp of approval on the horse business, it can not help but have a far-reaching influence in restoring this shaken confidence.

I should like to emphasize the term "market." There is a great difference between raising horses and producing market horses. It is the latter topic I want to discuss. In the first place, what is a market horse? You know Ezra Kendall's statement "Pigs is Pigs." Many who raise horses seem to be laboring under the impression that "horses is horses." That is not a fact. The buyer was never as discriminating as he is today. On the other hand I am safe in saying there never was a time when first-class horses sold for more than they do today. Most men do not appreciate the distinction between a market horse and any old kind of a horse. What is a market horse? The very definition of the term "market" makes that point clear. The original market, as you know, was a medium for the exchange of commodities. This term "medium" introduces the idea of two parties, one on one side of the medium and the other on the other side, between whom the exchange takes place. They are the producer on the one hand and the seller on the other.

I should like to emphasize the importance of the consumer ruling the types of horses for which there is a market. So, any horse for which there is a market is a market horse. In other words, it takes two parties to consummate a sale. It does not make any difference how highly you value your horse; you have to find somebody else who thinks as you do. A market horse is a horse that has a buyer.

The man who is going to sell market horses must keep himself informed, for the simple reason that the market conditions are continually changing. I have already tried to show you that they are ruled by the consumer; unless the producer keeps in touch with the consumer's demands, he can not meet them when he gets to market.

The question naturally arises, "What sort of horses shall we produce today to meet the demand?" I have no patience with the man who thinks that the motor car has put the horse out of business, and I have no faith in the statement that the motor has nothing to do with the horse business. It has and you must take the motor into consideration. The thing for you to do is to study the proposition and eliminate from your consideration those classes of horses with which the competition is most keen. If you follow the market conditions you will find that the commercial draft horse is as good a proposition today as he ever was, and so far as we can find out from the men who are using these horses, there is nothing to indicate that this state of affairs will not continue to exist.

I was in a stable of a Philadelphia concern that works 107 head of horses — the biggest and best draft horses they can buy. They had just returned from Ohio with a carload of 22 head. This concern is working six big five-ton trucks. They claim it costs them 12 cents a hundred to deliver by truck and only 6 cents to deliver by horses. They can make their deliveries, running out 20 or 30 miles, by motors; but for the about-town deliveries they find there is nothing to it but horses. I could take you on through the different lines of delivery service, and if we lay aside the matter of vogue — the fact that some people are so fastidious as to demand that their goods shall be delivered by auto — if we can eliminate those people, you will find that in a short radius of three or four miles the efficiency of the horse is far ahead of the motor. There is no reason why these conditions should be reversed. I think the draft horse is a good proposition for anyone to breed.

I sometimes take a position, not exactly at variance but a little different from the position of many men who are talking horse. Nearly all of the college men have been pushing the draft horse

hard. I do not want to detract one bit from the draft horse, but I do believe this: If we make the draft horse the only consideration to the exclusion of the other types, we are not only doing an injustice to the other types themselves, but we are standing in our own light. There are a number of very good reasons why the draft horse is every man's horse — why the average farmer will do far better to breed the draft horse than any other kind of horse. On the other hand it is a little derogatory to the farmer to say that every farmer is an average farmer. We might say that day labor is the average of all our public employment. There are many farmers in this country who are capable of raising something beside draft horses. There is no question but that he is a simpler proposition. Like the hog, he will turn the money with a greater degree of certainty. But when I see the prices that our Philadelphia buyers are paying the Virginia and Kentucky farmers for hunters and saddle horses, I am convinced that there is a good margin of profit left for them.

The saddle horse business was never better than it is at the present day. The bridle paths of Central Park are swarming with horses every morning. There is no reason why there should be any let-up in the demand for saddle horses. As a matter of fact, the motors have contributed to it. The very fact that the motor serves us so conveniently, makes getting about so easy, and necessitates so little actual exercise, is accountable for the fact that so many men have been forced to take exercise, and that exercise is usually in the line of horseback-riding. The majority of people buying saddle horses today require those that go well in harness. So the combination horse is a good live business proposition.

I do not think we should eliminate the harness horse. In one block in Philadelphia, yesterday, I counted three private broughams, a victoria, and a nicely turned-out station wagon, a thing I have not done in quite a while. I have heard a number of men say there is some sign of a slight come-back in the harness horse. It is generally reported there were more horses in Newport last year than in six or seven years. Perhaps this may not mean very much to us, but nevertheless that is a place to read the signs of the times in horses of that particular type. So we ought not to eliminate the harness horse.

The poorest thing in the horse line is the no account road horse. His place is so much better taken by the car that unless you have a road horse of the highest type, he should not be considered. I have seen them sold very much below what it cost to produce them.

We are safe in saying that, as a business proposition, we may bank on the draft horse and saddle horse, and then come down to the harness horse for a place.

The horse is such a factor in our sports and pastimes that I do not believe he will ever be eliminated by competition with a motor car.

If these are the horses that we are to purchase, the question arises, "How shall they be most economically placed on the market?" The situation can be summed up in two words, "breed" and "feed;" "breed" comes first. The breeder furnishes us the raw material; the feeder is the man who finishes the product. You know very well there would be no object in your buying gasoline for a 60 horsepower motor if that car's capacity was limited to 40. It would be just as useless to give good feed to a poor horse. Therefore, I think that the breeding proposition should always precede the feeding. Dr. Davenport has given us a definition of breeding in his book; Luther Burbank has given us a very long definition—both of which are good. But it seems to me that it can be summed up in this statement: (I have never submitted this to Dean Davenport.) Breeding is the regulation of the progeny through the control of the ancestry, by selection of the parentage. I shall tell you why I like that definition; because it introduces three factors—the ancestors that go before, the parents which are, that is now, and the progeny which follow after. I emphasize the three because breeders are too prone to eliminate the first-named group. That is, we make our beginning here with this sire and dam and we expect to regulate what shall come after. The reason we have to consider the first-named group, the ancestors, is because the transmission of characters is not from the parents to the offspring, but it is from the ancestors, through the parents, to the offspring. There is rather a homely illustration that occurs to me: You are all familiar with the old-fashioned hour-glass. You know that you start the sand in the upper half and in time it all gravitates

down into the lower half, and you know that every grain in the upper half will eventually get into the lower half, and you also know that you can not introduce a grain of sand that was not in the upper half. Label your upper half "Ancestry," the middle part "Parents," and the lower half "Progeny," and you have the proposition as I see it. The characters that are going to be forthcoming in the horses that we are producing are the characters that were in the ancestors from whom the parents came.

Here is another principle: No individual manifests in his physical make-up all the inherent qualities which he inherits from his race. He may transmit to his offspring any character that he inherits from his race, whether he manifests it in his own physical make-up or not.

What is too often the case? Two men start in the same business to raise foals. One man perhaps has only the price of a mare and a good stud fee; therefore he is very careful in his selections and mates that mare with the best stallion he can afford. What are the results? He starts a constructive proposition. Ten years hence he has a very valuable stud of horses which he has bred. You go to the other man, who had unlimited resources and what do you find? He is out of it. Why? Because while the one man appreciated the fact that he had to go back of the individual to which he mated his mare, this other man supposed that if he bought a Grand Champion stallion and a Grand Champion mare he could not help but have a Grand Champion foal. This Grand Champion stallion may be the quintessence of merit of his whole race, so far as show ring qualifications are concerned, and yet he possesses the capability of transmitting characters that he has inherited from the race which are anything but meritorious. It happens that in the colts that he sires those latter characters are the ones that will be manifested, rather than the first-mentioned characters. While the other man, perhaps, has mated his mare with a stallion that has not the same show record, because he is a somewhat inferior individual, but the man who made the mating has studied his ancestry—he knows that he can not produce anything but good foals.

The actual application of that proposition is your pure-bred sire. How in the world can a stallion (I do not care how many

ribbons he has won, or how many races he has run) be expected to be a breeding power unto himself, when we know that the actual hereditary force of that individual is derived from his ancestors? By Galton's law we know there is a fractional contribution from each ancestor that will determine the character in the progeny. He is an unknown proposition, and it is a mighty expensive experiment to try him out on the mere chance that he may happen to be a good breeder.

On the other hand we hear much about pedigreed and registered horses. What is a pedigree? It is merely a record of the ancestry. Is it sufficient? Absolutely no. It is not the pedigree that suffices; it is the character of the ancestry. It is more to our advantage to find the records against the individual than to find no record at all, because then we are forewarned. But unless the pedigree itself is a record of merit, the mere fact that the animal possesses the pedigree is no reason why he should be patronized. That is a word of warning. We hear much about the pedigree business. I am no advocate of the grade stallion; it is pretty hard to eliminate a grade stallion from a community where he has been siring the best selling colts, on the mere fact that he has not a registration in a recognized association.

You have to improve your pure breds to a standard where the poorest pure bred is better than the best grade. Do not be misled by this mere matter of registry; but go to that record and see what it shows, and unless it shows merit do not have any more to do with him than you would with a horse that had no pedigree at all.

There is one other point that is always important, and that is what we know as prepotency. It is the relative influence of two individuals in determining the character of the offspring. The offspring may follow either parent — sometimes the sire in certain characters and sometimes the dam. You breed a mare to one stallion and you will find that she always has colts marked after that stallion. There is a difference in the relative influence of the sire and dam in determining the character of the offspring. What makes for prepotency? In the first place, pure breeding. Purity of breeding eliminates undesirable characters. Every time you have present in the ancestry an individual of the character you

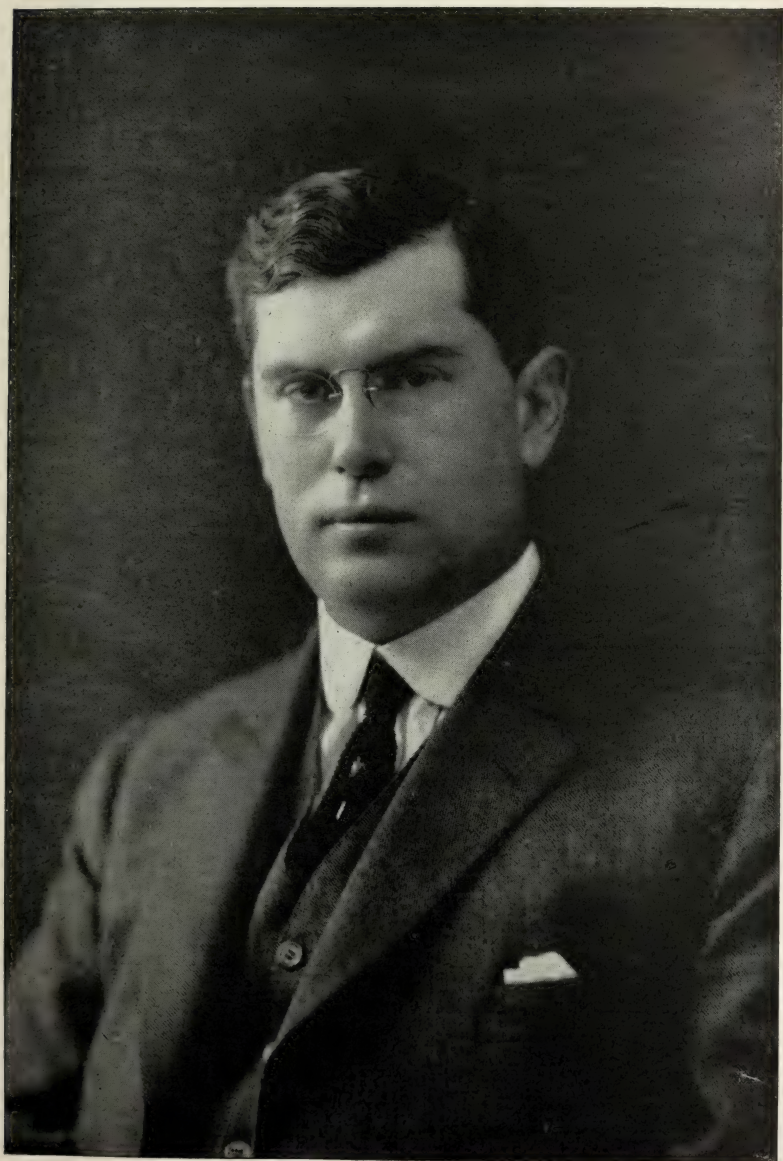


FIG. 227.—DR. CARL W. GAY

desire in the progeny you are re-enforcing the character which will manifest itself in the progeny. A good pedigree is really a good insurance policy that character has predominated in the ancestor and is bound to predominate in the progeny.

I do not want to introduce the matter of close breeding here, but using the same individuals as great a number of times as possible is the best way of securing uniformity in the ancestry. There are no two individuals as near alike as the same individuals used twice, therefore the more times you can use the same individual the more you purify and intensify and increase this prepotency. But we find prepotency is an individual proposition. Two full brothers may have distinctly different breeding powers. It is an individual personal equation. Sometimes it is very hard to account for, but we do know that the individual who has the impressive character is likewise an impressive breeder.

Now the matter of feeding. I said we would not think of taking a low-power automobile and feeding it gas enough for higher power. On the other hand we would not think of buying a 60 horsepower automobile and then only feed it gas enough to make 40 horsepower. It is essential that we should keep feeding abreast with the breeding. Dean Davenport has referred to Robert Bakewell who followed the system of always keeping the environment that surrounded his animals up to the standard to which he had bred them. We know that has an influence, and that you can not raise the one and lower the other — you have to keep them even. Take, for instance, our breeds of wool sheep. Probably the character of producing a fine fleece is more firmly fixed than any other improved character in any class of live stock. It ought therefore to be very firmly incorporated in that stock. Take the highest form of improved sheep, and put them under the primitive conditions of the range, where they are subjected to all kinds of privation, and you will find in a very few generations they will revert more or less to the primitive type. So it is in any other class of live-stock work — you have to keep the conditions that surround your stock up to the standard of the improvement wrought by your breeding, or the stock will deteriorate. Therefore it is highly essential that, if we produce blood lines which are capable of great things, we see to it that those things are given

an opportunity to develop by our system of feeding and management, and we never can realize in full on that particular animal unless we do.

There are one, two or three phases on which I should like to dwell. The first is the necessity of ample feeding. About one-half of a normal full ration is utilized by the animal in simply maintaining himself. If it is a dairy cow you are keeping, that would mean she is simply kept going out of half of that ration. If you are talking about a work horse, it means that he is simply maintained in normal health. If you are talking about a growing animal, it means that that foal can just hold his own — that there is no surplus left to grow on. Now the important thing to remember is that this ration is utilized for two things: In the first place for maintenance, in the second place production. The animal never goes halves with you. The relation of the part of the ration that is utilized for maintenance to the part of the ration that is utilized for production, is exactly the same as the relation of a first mortgage to a second mortgage. In other words, that animal will satisfy maintenance requirements before he will use a pound of his ration for production. When you find men feeding colts half a ration — just enough to keep them from going back — see what they are depriving that colt of. A colt has so many days to grow in, and the thing for the feeder to do is to get the maximum growth every day he lives. You can not catch up. If a colt goes through one winter on short rations, you will find, as a rule, he is a stunted colt; he never can make up what he has lost in that short time. So bear in mind that the colt should have a full ration in order to make his growth, and he must have that ration every day to utilize every growing moment he has.

It was said this morning, that size is a factor nowadays in market horses. They want their hunters big, and every pound you get on a draft horse adds to the actual price of it. So we can not afford in any case to lose a minute of the time that should be utilized in attaining the maximum weight.

So far as feeding is concerned, I want to refer especially to the draft horse. It has been contended that one good reason we can not raise as good draft horses in America as they can in France, is the fact that we do not feed them. I find, especially

in the East, that the notion is to feed all horses alike. I know a man near my home who has a draft stallion and a road horse in the same barn, cared for by the same man and absolutely in the same manner, and they are getting so they look exactly alike — his draft horse looks like a big, overgrown road horse. The draft horse is of as different type as a grand piano is different from an upright piano. It is a distinct pattern. This pattern consists of lines and dimensions that require a certain amount of fat to carry them out.

Do you recall, in your experience, an acquaintance who perhaps has been normally a fat man, and who has lost weight through sickness? He may still weigh as much as you do, but he looks thinner. Why? Because he was intended to be filled out. You know there is no thinner animal on the farm than a thin hog; it is ten times thinner than the most scrawny cow. A spare form is in keeping with the cow, but a hog's lines are all round and full, and when you take that away you have destroyed the symmetry. I am pleading for fat on the draft horse. I believe that too many, especially eastern men, labor under the impression that draft horses are excessively fat when they are not. It is perfectly normal for them to be a whole lot fatter than any other horse. When you think he is too fat to breed or too fat to work, you let him down, you may find it will be a detriment to that horse. It is normal for that horse to carry a certain degree of fat, and it is normal for that horse to be filled out in his form, and in order to do so he must have a quantity of roughage. He not only must have an abundance of everything, but the character of his ration has to be different, and you must allow an abundance of roughage. There is absolutely no reason why these draft horses should not be fed to a condition of fullness, and this applies especially to the colts.

So far as the specific feeds are concerned, there is one that I should like to refer to, and that is perhaps the most common — timothy hay. It is a fact that timothy hay has a physiological effect on a horse. It acts as a filler, and keeps him "hard" in a way that no other ration does. To that extent, perhaps, the price paid for it is justifiable, but it does not have a proportionate

nutritive value. If you are going to feed timothy hay you must feed something else for the horse to live on.

There is one other thing that applies to the feeding of horses in general, and that is our feeding standards. I want to say this about the standards: We have to have them. It is true our American experience has demonstrated that most of the German standards are a little high. As portein is the most expensive part of the ration, it is really the constituent upon which the value of the ration is based. The lower we can cut down the protein, the less the cost of the maintenance. I believe the man who feeds altogether by these standards, or by rule of thumb, is losing the art. I consider that feeding is an art and not a science. You know the scientist does things absolutely right; the chemist gets things to the fourth or fifth decimal of accuracy. The man who does mechanical drawing does it with a compass, T square and measurements, that make it absolutely correct; on the other hand, the artist is furnished his materials and everything is approximate, but it depends on his own ingenuity what his results will be. I believe we ought to cultivate the idea of artistic feeding. By that I mean simply this: Do not depend too much upon any feeding standards; do not depend on any set rules.

You often go through a dairy stable, and find the name of the cow, the age, and some other data that applies to her, and what feed she is getting, indicated on a card. Any boy could go in there and feed those cows — all he has to do is to get the stuff and throw it in. The way to feed those cows, or horses, is to employ a man of sufficient intelligence, so that he does not need a man in the office to tell him what to feed. You can not figure it in the abstract; you can not say that here is a horse that is doing so much work and requires so much and such feed. The man who studies the horse knows that no two horses are alike — that they have individualities that require consideration from the feeder, and the man who would be an intelligent feeder is the man who can appreciate those things and supply them as demanded. The way the horse consumes his grain, the consistency and the color and the odor of the excrement, etc., tell the story, and I have not a doubt that if an analysis is made of the ration that is calculated

on that basis it will be found pretty nearly accurate, and corresponding to the requirements of the so-called German feeding standards. And yet it would be the result of observation, rather than any hard and fast rule that the feeder was following.

I might add another word, "lead." You must remember that most market horses are sold on the halter, or at least that is the way they are shown first. The draft horses are sold that way very largely, and while saddle and harness horses are usually shown under saddle or in harness the first look is usually had when they are shown in hand. It is an actual fact that the first impression you get of an animal is a lasting one. If you had a chance to make it under proper conditions, you will find that it is the impression that ought to stand by you. It is absolutely legitimate to present a horse with his best foot forward, to create the best impression which that horse is capable of making. It is only fair to the horse and to you. In order to do this a horse must be tangent to lead. Many and many a time you will hear a man say, "This horse never makes any show on the lead; you ought to see him in harness." As a matter of fact, the buyer has formed his impression nevertheless, and that impression may have caused a little prejudice from which he never will get away. Therefore, I think that men who are producing market horses should feed and breed along the right lines, and then give this primary instruction. Unless a man is capable of going all the way through, he should not do very much with schooling. You will find, as a rule, that men will pay as much for a green horse absolutely in the rough, because a little attempt at schooling him by an incompetent man will spoil him. When it comes down to a final decision the question is, "What can he do?" Many an ill-shaped horse has been passed and accepted by a prospective buyer over a horse that has been twice as good-looking, but he did his work in a more efficient manner. The thoroughly schooled horse is the only horse that can give satisfaction. Therefore, unless you are competent to go all the way through, do not attempt to do any of it, but leave that to the man who is more competent.

To summarize, I am going to leave these words with you: *Read, Breed, Feed, Lead*, and if you follow that practice I also believe we are safe in assuming that we could append the final word, *Succeed*.

MR. HUSON: The address of Dr. Gay brings to a very successful conclusion our formal program. The next in order will be the reports of committees, and first we will have the report of the committee on resolutions, of which Professor Wing is the chairman.

PROF. WING read report as follows:

1. WHEREAS, The Highway Department, under Commissioner Carlisle, has prepared and has ready plans and specifications for road construction during the coming season — has already let some contracts and is about to let many others, and

WHEREAS, This association believes that a change of Commissioners at this time would hold up good road work and construction for at least another year, therefore,

Be it Resolved, That the secretary be instructed to write the Governor, urging the retaining of Commissioner Carlisle and expressing the confidence of this association in Mr. Carlisle's honesty and ability.

2. WHEREAS, The Panama-Pacific Exposition will be held in San Francisco in the year 1915, and

WHEREAS, An appropriation has been made by the Legislature to properly represent the State of New York, therefore,

Be it Resolved, That it is the sense of this association that a just portion of this appropriation be set aside to properly promote and represent the live stock industry of the state of New York.

3. WHEREAS, The New York State Breeders' Association appreciates the splendid aid and intelligent assistance rendered the live stock interests of the state by the Department of Agriculture, therefore,

Be it Resolved, That this association commends and heartily approves of the administration of the department as conducted by the present Commissioner Honorable Calvin J. Huson, and that this association, through its secretary, enthusiastically requests and urges the Governor to reappoint Mr. Huson as Commissioner of Agriculture of New York State for another term.

4. WHEREAS, This association appreciates and approves of the suggestion of Lieutenant-Governor Wagner that a winter fair should be held, and

WHEREAS, Such a fair would materially aid and strengthen the work of this association, therefore,

Be it Resolved, That we ask Lieutenant-Governor Wagner to urge upon the State Fair Commission that such a fair be held at Syracuse in the winter of 1915.

5. WHEREAS, At present it is customary for dairymen to procure for feeding purposes skimmed raw milk from various milk houses, and

WHEREAS, It is recognized that this is a potent factor in the spread of tuberculosis to young calves and pigs, therefore,

Be it Resolved, That this association petition the Commissioner of Agriculture to urge upon the Legislature measures to cause the pasteurization of this product before it can be distributed for such feeding purposes.

6. WHEREAS, Farmers and sheep owners are suffering continual loss from the depredation of dogs, and

WHEREAS, The constant presence of rabies in the state is a menace to the lives of the people, therefore,

Be it Resolved, That this association respectfully requests the Commissioner of Agriculture of the state of New York to urge the passage of a law to compel the state-wide registration of all dogs with a suitable license fee, one-half of such license fees to be returned to the county where the dogs are registered.

7. WHEREAS, The present law relative to bovine tuberculosis is not accomplishing the desired results, therefore,

Be it Resolved, That this association petition the Commissioner of Agriculture to urge upon the Legislature the great importance of amending the present law relative to bovine tuberculosis by providing for a physical examination of all cattle in all of the herds of the state and the elimination of all animals unfit for milk production.

8. WHEREAS, The inferiority of colts bred in this state is largely due to the scrub stallion and the lack of sound and pure-bred sires, and

WHEREAS, It requires at least eighty thousand horses at the cost of twenty millions of dollars bred outside of this state, to supply its demand each year, and

WHEREAS, Our present stallion law is inadequate, therefore,

Be it Resolved, That it is the sense of the New York State Breeders' Association that a suitable bill be drafted and introduced at the present Legislature to improve the stallion service in this state that will gradually eliminate the use of the scrub and mongrel sire.

MR. HUSON: I wish to make an announcement. The members of this association have been invited to take a trip to Ashantee, the beautiful home of Mr. Herbert Wadsworth, tomorrow morning. A special car will leave the Erie station at 9.45, and will stop for a short time either going or returning—I am not sure which—at the home of Mr. Markham. The trip will be made so that we will return to Rochester about 3 o'clock in the afternoon. It is a rare privilege and I hope that as many members of the association as can will remain over and make this trip. The fare for the round trip is, I think, 90 cents.

Are there any other resolutions or matters to be brought before the meeting before we take up the election of officers? In this connection I desire to read a telegram which I received during the course of the afternoon.

MR. BELL: It is desirable that all those who desire to take advantage of this opportunity of visiting one of the grandest places up the valley tomorrow should present their names, for arrangements have to be made and we should like to know how many are going to accept and take advantage of this opportunity.

MR. HUSON: It is important we should have the names.

I will now read the telegram from the Secretary of the Syracuse Chamber of Commerce.

(Telegram read inviting the association to meet in Syracuse next year.)

I think Mr. Smith has a word to say in reference to this invitation.

MR. WING R. SMITH: Mr. President, and Gentlemen: The Holstein-Friesian Breeders' Club of New York, of which I am secretary, held a meeting a few days ago, and while no formal action was taken, it was talked about among us at quite a great

length that it would be a splendid thing if such a winter meeting as has been suggested by the Secretary of the Chamber of Commerce of Syracuse could take place. A new pavilion has been built that will take excellent care of 200 to 250 head of animals — that is, cattle — and we could arrange for horses as well, or sheep or swine, and it seems to us that we could have a combination sale there and make it sort of a show and sale at the same time — show the animals and, if necessary, have prices for them, and then put them up at auction and sell them. If that is done you can count on Syracuse to give her very best entertainment, and the Holstein-Friesian Club of New York to give their services without charge and to further the interests of the association in any way that is possible. We would be very glad to see you there.

MR. SESSIONS: I move that the secretary acknowledge the receipt of this invitation and express the thanks of the association for the same, and that the invitation be referred to the directors and officers for further action.

MR. HUSON: You have heard the motion that the secretary acknowledge the receipt of the invitation of the Syracuse Chamber of Commerce, and that the invitation be referred to the board of directors as is provided by the constitution.

(Motion carried.)

MR. BELL: Mr. Chairman, and Gentlemen of the Association: In behalf of the common council of the city of Rochester, and in behalf of the committee of arrangements, I extend to this association a cordial invitation to hold their next annual meeting at this place. And I shall move, in connection with that, that this resolution, or motion, be referred to the executive committee, for them to take it into consideration when they are appointing the time for our next meeting.

(Motion carried.)

MR. HUSON: Is there any further business before we take up the election of officers, which is the concluding act of our program? If not, we will proceed with the election of officers. There is one more matter — the report of the committee

to audit the accounts of the treasurer. Is that committee ready to report?

The next in order is the election of officers. Mr. Smith takes the chair.

MR. GEORGE A. SMITH: Now, gentlemen, the first in order will be the election of a president.

MR. LAWRENCE: Mr. President, and Gentlemen of the New York State Breeders' Association: I wish to place in nomination the name of one whose record I believe we are all justly proud of, and have reason to be, and I believe that that record has been made by honest, hard, efficient, effectual work, with an ideal to work only and singly for the benefit of what this association represents and means. I take great pleasure in presenting the name of Commissioner Calvin J. Huson, and move you, if there are no other nominations, that the secretary be instructed to cast a ballot for Mr. Huson.

MR. SMITH: Are there any further nominations? You have heard the motion. (Motion duly carried.)

Mr. Huson is elected as president for the ensuing year. I shall appoint Mr. Peer and Mr. Bell to conduct President Huson to the chair.

MR. HUSON: Mr. Smith, and Gentlemen: I feel very highly complimented, I assure you, at your action. I believe, however, that it would have been much better had some other selection been made. I have felt, during the two years that are past, that this association would have been much better in the hands of someone who had more leisure and who could give it more personal attention than I have been able to do. I am interested in it, and in its success, as I am interested in no other similar organization in the entire state. There is something about this great body of men interested in the breeding of our domestic animals that appeals to me as no other agricultural organization does.

As you know, my time is pretty well occupied, and except for the fact that your vice-president, secretary and treasurer have devoted more time to the details of the work of this association than ordinarily devolves on those positions, the meetings that have

gone before would not have been the success that they have been. I am not going to decline the election which you so generously tendered me. If, in your judgment, it is the best thing for this organization to continue the present officials, it is their duty to give to it the best service within their power.

I thank you most sincerely for this expression of your renewed confidence.

MR. SMITH: The next in order will be the election of the vice-president.

MR. PEER: I should like to propose the name of an old friend who has been occupying this position, Mr. Fred W. Sessions.

MR. SMITH: It is moved and seconded that you elect Mr. Fred W. Sessions, of Utica, as the vice-president for the ensuing year. Are you ready for the question? (Motion carried.)

MR. SMITH: The next in order will be the election of a secretary in place of Albert E. Brown.

(Moved and seconded that Mr. Brown be renominated.)

It is moved and seconded that you elect the present secretary, Albert E. Brown, of Batavia. (Motion carried.)

The next is the election of treasurer in the place of Mr. Wing R. Smith, of Syracuse.

(Moved that a ballot be cast for Mr. Wing R. Smith, and seconded.)

(Motion carried.)

MR. SMITH: Now we are to elect four directors in place of Mr. H. B. Harpending, George W. Sisson, W. G. Markham, and George E. Lane.

MR. HUSON: I would nominate Mr. Harpending to succeed himself. (Motion carried.)

Motion made and carried to nominate Mr. George W. Sisson.

MR. HUSON: In that connection I want to state that I have a telegram from Mr. Sisson expressing the wish that we should have a profitable session, and his regret that he is not able to be here.

MR. SMITH: Next is W. G. Markham.

(Moved that Mr. Markham be nominated.)

It is moved and seconded that Mr. Markham serve you as director for the ensuing three years. (Motion carried.)

MR. SMITH: The next will be in the place of George E. Lane.

MR. SESSIONS: On the old board of directors there were two from the same county. We all know that Mr. Lane is a splendid gentleman, makes an efficient officer and a good director, but it hardly seems right that one town alone should be represented by two directors. And for that reason I should like to suggest a name in the place of Mr. Lane, and take pleasure in placing in nomination Mr. R. T. Wainwright, of Rye, N. Y., and I move you, that the secretary be instructed to cast one ballot, upon which shall appear the name of R. T. Wainwright as director for three years. (Motion duly seconded and carried.)

There being no further business, the meeting was adjourned.

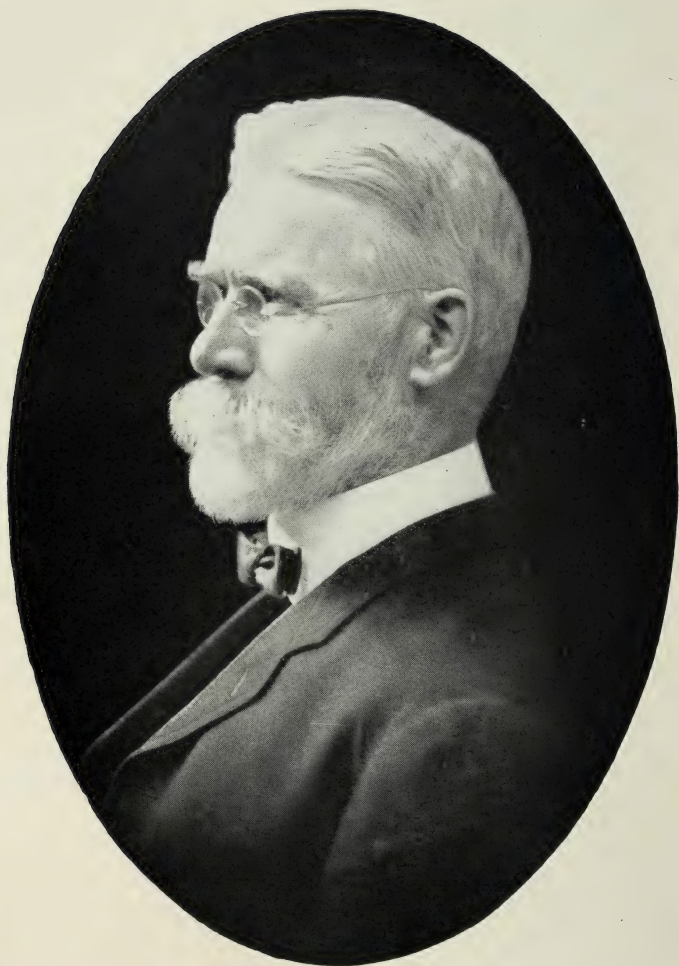


FIG. 228.—JOHN J. DILLON, PRESIDENT OF THE NEW YORK STATE AGRICULTURAL SOCIETY, 1914.

STATE OF NEW YORK
DEPARTMENT OF AGRICULTURE

CALVIN J. HUSON, Commissioner

Bulletin 60

PROCEEDINGS

OF THE

SEVENTY-FOURTH ANNUAL MEETING

OF THE

New York State Agricultural Society

IN COOPERATION WITH THE

STATE DEPARTMENT OF AGRICULTURE

1914

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OFFICERS FOR 1914

PRESIDENT

John J. Dillon, New York.

VICE-PRESIDENTS

First District.—Mrs. Julian Heath, New York.

Second District.—Ezra Tuttle, Eastport.

Third District.—Gilbert M. Tucker, Albany.

Fourth District.—C. Fred Boshart, Lowville.

Fifth District.—W. R. Smith, Syracuse.

Sixth District.—Samuel Fraser, Geneseo.

Seventh District.—W. C. Barry, Rochester.

Eighth District.—F. N. Godfrey, Olean.

Ninth District.—Dr. G. H. Davison, Millbrook.

SECRETARY

A. E. Brown, Batavia.

TREASURER

Harry B. Winters, Albany.

EXECUTIVE COMMITTEE

A. Denniston, Washingtonville.

J. A. D. S. Findlay, Salisbury Mills.

William Church Osborne, New York.

Dr. Thos. E. Finegan, Albany.

Franklin D. Roosevelt, Poughkeepsie.

E. van Alstyne, Kinderhook.

George W. Sisson, Jr., Potsdam.

T. B. Wilson, Hall.

F. W. Sessions, Utica.

STANDING COMMITTEES

AGRICULTURAL EDUCATION

Chairman, L. H. Bailey, Ithaca, N. Y.

Dr. Thos. E. Finegan, Albany.
W. H. Vary, Watertown.

Gilbert M. Tucker, Albany.
Geo. G. Royce, Macomb.

PUBLICITY

Chairman, F. W. Sessions, Utica.

C. W. Burkett, New York City. Harry B. Winters, Albany.

LEGISLATION

Chairman, Hon. C. Fred. Boshart, Lowville.

Hon. T. B. Wilson, Hall.
Hon. O. U. Kellogg, Cortland.
H. V. Bruce, New York City.

Hon. Franklin D. Roosevelt, Hyde
Park.
Rev. Brother Barnabas, Lincolndale.
John J. Dillon, New York City.

MARKETING, TRANSPORTATION AND GRIEVANCES

Chairman, John J. Dillon, New York City.

P. H. Burnett, New York City.
E. H. Dollar, Heuvelton.
E. A. Powell, Syracuse.

H. O. Palen, Highland.
W. W. Ware, Batavia.
Jared Van Wagenen, Jr., Lawyers-
ville.

TAXATION AND BANKING

Chairman, W. H. Giles, Skaneateles.

Henry Burden, Cazenovia.

Floyd N. Carlisle, Watertown.

DEVELOPMENT OF AGRICULTURAL RESOURCES

Chairman, James W. Wadsworth, Jr., Mt. Morris.

Hon. Calvin J. Huson, Albany.
Wm. Cary Sanger, Sangerfield.
Dr. W. H. Jordan, Geneva.
Loton Horton, New York City.

Dean H. E. Cook, Canton.
D. B. Carse, New York City.
Edward van Alstyne, Kinderhook.
Dr. Boothe C. Davis, Alfred.

COOPERATION

Chairman, C. R. White, Ionia.

Ezra A. Tuttle, Eastport.

F. N. Godfrey, Olean.

Rev. Brother Barnabas, Lincolndale.

E. A. Powell, Syracuse.

MEMBERSHIP

Chairman, James A. D. S. Findlay, Salisbury Mills.

Edwin H. Chapman, New York City.

F. W. Sessions, Utica.

R. T. Wainright, Port Chester.

W. P. Schanck, Avon.

PRESIDENTS

1841	Joel B. Nott*	Guilderland.
1842	James S. Wadsworth*	Geneseo.
1843	James S. Wadsworth*	Geneseo.
1844	John P. Beekman*	Kinderhook.
1845	Benjamin P. Johnson*	Albany.
1846	John M. Sherwood*	Auburn.
1847	George Vail*	Troy.
1848	Lewis F. Allen*	Black Rock.
1849	John A. King*	Jamaica.
1850	Ezra D. Prentice*	Albany.
1851	John Delafield*	Oakland.
1852	Henry Wager*	Utica.
1853	Lewis G. Morris*	Mount Fordham.
1854	William Kelly*	Rhinebeck.
1855	Samuel Cheever*	Elmira.
1856	Theodore S. Faxton*	Utica.
1857	Alonzo S. Upham*	Le Roy.
1858	William G. McCoun*	Syracuse.
1859	Abraham B. Conger*	Waldberg.
1860	Benjamin N. Huntington*	Rome.
1861	George Geddes*	Fairmount.
1862	Ezra Cornell*	Ithaca.
1863	Edward G. Faile*	New York.
1864	James O. Sheldon*	Geneva.
1865	Theodore C. Peters*	Darien.
1866	John Stanton Gould*	Hudson.
1867	Marsena R. Patrick*	Sacketts Harbor.
1868	Thomas Hall Faile*	New York.
1869	Samuel Campbell*	New York Mills.
1870	Solon D. Hungerford*	Adams.
1871	Richard Church	Belvidere.
1872	Milo Ingalsbe*	South Hartford.
1873	Benjamin F. Angel*	Geneseo.
1874	Harris Lewis*	Frankfort.
1875	Alexander S. Diven	Elmira.

* Deceased.

1876	Edwin Thorne*	New York.
1877	Patrick Barry*	Rochester.
1878	George W. Hoffman	Elmira.
1879	Horatio Seymour*	Utica.
1880	N. Martin Curtis*	Ogdensburg.
1881	Robert S. Swan*	Elmira.
1882	John D. Wing*	New York.
1883	George F. Mills*	Fonda.
1884	William M. White*	Canaseraga.
1885	James W. Wadsworth	Geneseo.
1886	James McCann*	Elmira.
1887	James Geddes*	Fairmount.
1888	W. A. Wadsworth	Geneseo.
1889	James Wood	Mount Kisco.
1890	James Wood	Mount Kisco.
1891	O. B. Potter*	New York.
1892	O. B. Potter*	New York.
1893	J. B. Dutcher	Pawling.
1894	J. B. Dutcher	Pawling.
1895	I. P. Roberts	Ithaca.
1896	I. P. Roberts	Ithaca.
1897	Benjamin F. Tracy	New York.
1898	Benjamin F. Tracy	New York.
1899	Timothy L. Woodruff*	Brooklyn.
1900	Timothy L. Woodruff*	Brooklyn.
1901	John H. Farrell*	Albany.
1902	F. E. Dawley	Fayetteville.
1903	F. E. Dawley	Fayetteville.
1904	F. E. Dawley	Fayetteville.
1905	Gilbert M. Tucker	Albany.
1906	Gilbert M. Tucker	Albany.
1907	James H. Durkee*	Sandy Hill.
1908	James H. Durkee*	Sandy Hill.
1909	Raymond A. Pearson	Ithaca.
1910	Raymond A. Pearson	Ithaca.
1911	Raymond A. Pearson	Ithaca.
1912	George W. Sisson, Jr.	Potsdam.
1913	George W. Sisson, Jr.	Potsdam.
1914	John J. Dillon	New York.

* Deceased.

CONSTITUTION

The style of this society shall be "The New York State Agricultural Society." Its object shall be to improve the condition of agriculture, the rural household and mechanic arts.

Section 1. The society shall consist of such citizens of the state as shall signify in writing their wish to become members and shall pay, on subscribing, not less than one dollar and annually thereafter one dollar; and also of honorary and corresponding members. The presidents of state associations actually working for the improvement of the various branches of agriculture, the presidents of county and town agricultural societies, or a delegate from each shall, ex-officio, be members of this society. The payment of ten dollars or more, as fixed by the executive board, shall entitle the donor to life membership and shall exempt him from annual dues.

Section 2. The officers of the society shall consist of a president, nine vice-presidents, one to reside in each judicial district of the state, a secretary, a treasurer and an executive committee of eight additional members. The executive board shall consist of the officers above named; eleven members of the board shall constitute a quorum.

Section 3. The president shall preside at all meetings of the society and of the executive board. In his absence a vice-president shall be named by the meeting as presiding officer.

Section 4. The secretary shall keep the minutes of the meetings of the society and the executive board; he shall conduct all correspondence in behalf of the society.

The treasurer shall keep the funds of the society and disburse them on the order of the executive board, or a duly appointed sub-committee thereof, countersigned by the president of the society, and shall make a report of the receipts and expenditures at the annual meeting in January.

The executive board shall transact the general business of the society and shall perform such other duties as shall seem best calculated to promote the objects of the society.

Section 5. There shall be an annual meeting of the society on the third Wednesday in January, in the city of Albany, at which time all the officers shall be elected by a plurality of votes and by ballot.

The executive board shall have power to fill any vacancies which may occur in the offices of the society during the year. The society may be convened in special meeting by the executive board and fifteen members shall constitute a quorum. No person shall be qualified to vote at any election of officers of the society unless he shall have been a life member for at least thirty days prior to the holding of such election.

Section 6. No officer of the society shall receive any pecuniary compensation for services rendered to or for the society, except on the authority of the society granted at a regular annual meeting.

Section 7. The constitution may be amended by a vote of two-thirds of the life members present at an annual meeting.

PROGRAM

Tuesday, January 20, 1914

In the Assembly Parlor, 10 A. M.

Report of Committee on Publicity

Chairman, F. W. SESSIONS, Utica

Report of Committee on Legislation

Chairman, Hon. C. FRED BOSIHART, Lowville

Report of Committee on Taxation and Banking

Chairman, W. N. GILES, Skaneateles

**Report of State Standing Committee on Cooperation, and Committee on
Marketing and Transportation**

Chairman, JOHN J. DILLON, New York

"One Cooperative Success, and a Plan to Liquefy Mortgage Credits"

LUCIUS C. TUCKERMAN, Milton

"A Practical Savings and Loan Association"

B. G. PARKER, President of Gouverneur Building and Loan Association,
Gouverneur

2 P. M.

"What Is Agricultural Credit?"

R. B. VAN CORTLANDT, New York

Report of Committee on Cooperation

Chairman, C. R. WHITE, Ionia

"What the Eastern Fruit and Produce Exchange Has Done"

SETH BUSH, Morton

"Cooperative Work of the State Grange"

EZRA A. TUTTLE, Eastport

"How Housewives Can Cooperate"

Mrs. JULIAN HEATH, President of National Housewives League, New York

"Work of the State Bureau of Cooperation"

HON. MARC W. COLE, State Department of Agriculture, Albany

In the Senate Chamber, 8 P. M.

President's Annual Address

GEORGE W. SISSON, JR., Potsdam

"Market Roads for the Farmer"

Hon. JOHN N. CARLISLE, State Commissioner of Highways, Albany

"Lessons in Agriculture from the Far East"

(Illustrated)

Prof. C. H. TUCK, Cornell University

Wednesday, January 21, 1914

In the Assembly Parlor, 9.30 A. M.

BUSINESS SESSION

Report of Secretary

ALBERT E. BROWN, Syracuse

Report of Treasurer

HARRY B. WINTERS, Albany

Miscellaneous Business

Reports of Special Committees

Election of Officers

Report of Committee on Development of Agricultural Resources

Chairman, JAMES W. WADSWORTH, Jr., Mt. Morris

Report of Committee on Drainage

Hon. RICHARD W. SHERMAN, Chief Engineer State Conservation Commission,
Albany

Discussion by Prof. E. O. FIPPEN, Professor of Soil Technology, Cornell University; Prof. B. B. ROBB, Drainage Engineer, State Department of Agriculture; JAS. A. D. S. FINDLAY, Salisbury Mills

"County Farm Bureaus"

M. C. BURRITT, State Director of Farm Bureaus

FIELD REPORTS

Jefferson County, F. E. ROBERTSON, Agent, Watertown

Oneida County, G. W. BUSH, Agent, Utica

Chemung County, G. P. SCOVILLE, Agent, Elmira

2 P. M.

Report of Committee on Agricultural Education

Chairman, Dr. L. H. BAILEY, Ithaca

"How May Our Rural Schools Be Improved?"

Dr. THOMAS E. FINEGAN, Assistant Commissioner of Education, Albany

"Agricultural Unification in New York"

Dean H. E. COOK, State School of Agriculture at St. Lawrence University,
Canton

DISCUSSION

In the Assembly Chamber, 8 P. M.

Hon. CALVIN J. HUSON, Commissioner of Agriculture, *presiding*

Address

Hon. MARTIN H. GLYNN, Governor of New York

Address

Chancellor JAMES R. DAY, of Syracuse University

ANNUAL MEETING

IN THE ASSEMBLY PARLOR, STATE CAPITOL, ALBANY, N. Y.,
JANUARY 20-21, 1914.

TUESDAY, JANUARY 20

MORNING SESSION

President George W. Sisson, Jr., called the meeting to order.

THE PRESIDENT: This marks the seventy-fourth annual convention of the New York State Agricultural Society. This society is venerable in years and, I believe, useful in service. That it has been such has been due solely to the honest, unselfish work of just such men as I see here before me this morning and its future usefulness will depend exactly upon that sort of spirit. I, therefore, am pleased to welcome you here and trust that we may bring to the problems that come before us the same careful scrutiny, the same interest and devotion to the best interests of this state that have marked our former deliberations.

We will proceed to the program without further remarks. We have some formal reports to receive and as time permits, discussion will be allowed. I have this request to make: That any person taking part in the discussions will plainly state his name before speaking, for the benefit of the records of this meeting.

We had hoped to have as usual a report from our Committee on Publicity, of which Mr. Fred W. Sessions of Utica has been the efficient chairman for two or three years. I believe everyone here fully senses the very generous service Mr. Sessions has given to this and similar bodies in this state, but he writes me that he sincerely regrets that it will be absolutely impossible for him to be in Albany this morning.

I could anticipate about what he would tell us, that without funds they had been able to accomplish but very little.

So we will pass on to the report of the Committee on Legislation, to be given by the Chairman, Honorable C. Fred Boshart, of Lowville.

REPORT OF COMMITTEE ON LEGISLATION

C. FRED BOSHART

As we review the important recommendations made by this society one year ago, we are gratified to know that these suggestions received the hearty support of the Commissioner of Agriculture, have been embodied in laws, enacted in statutes, greatly assisting the agricultural advancement of the state. No greater stimulus could have been given agricultural life, no more judicious appropriation voted by our state, than that giving aid in the establishment and maintenance of farm bureaus. The work inaugurated by the farm bureau managers in the counties of Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Clinton, Cortland, Delaware, Dutchess, Erie, Franklin, Herkimer, Jefferson, Monroe, Montgomery, Niagara, Oneida, Onondaga, Oswego, Otsego, St. Lawrence, Tompkins and Wyoming serves a living example of wise appropriations encouraging increased activities in rural life, with better and improved varieties of fruits, vegetables and cereals, with advanced methods of soiling and cultivation, with up to date practices in breeding and handling the dairy cow and her products, the agricultural districts of the state are developing and assuming a new life. The laws regulating commission dealers and exacting a bond from milk dealers have been recommended by this society and are now part of our statutes. A section of our Agricultural Law provides, that no person shall sell or expose for sale any calf or carcass of the same or any part thereof, except the hide, unless it was, if killed, at least four weeks of age at the time of killing. This calf law as embodied in the statutes of this state is all that can be asked by the consuming public and should a similar law be adopted by other states bordering on the state of New York the sale of bob veal would be stopped to the detriment of no interest.

As I said one year ago I repeat now, "we believe that we should have uniformity in agricultural laws of the several states so far as local conditions will permit and in the enactments by Congress, and suggest that the Commissioner of Agriculture of this state lend his best endeavors to gradually bring about their accomplishment."

There is now pending before Congress at Washington several calf bills very detrimental, if not fatal, to the dairy interest of this state. The bill introduced by Mr. Adamson provides, "That from and after the passage of this act it shall be unlawful to slaughter, sell, purchase, offer to purchase, transport, or offer for transportation in any state, territory, or district of the United States with the purpose and intention that it shall be used and eaten as veal or beef in any state, territory, or district of the United States any female calf, heifer, or cow under seven years of age, or any male calf under two years of age, or the carcass or flesh of any such animal." The enactment of this bill in law would be a staggering blow to our dairy industry and make it impossible for our people to carry on the vocation, dairying, which they have been trained to follow since the settlement of the state, and which the greater part of the state is particularly adapted to.

Our farms are of limited area, and at present they are stocked to their full capacity with dairy cattle and our people can not raise a large surplus of young stock, beyond enough to keep the dairies full.

This law would force our state to change from a great dairy state to a beef producing state, when our internal conditions would not warrant so radical a change.

We also have pending before Congress the bill introduced by Mr. Hamilton. This calf bill is designed to prevent the interstate shipment and trafficking in immature veal calves. We are heartily in accord with a bill that will accomplish this purpose and will unite with the promoters to accomplish such ends, but this bill is unfair to the dairymen of New York and would place a statute on the books that would permit the sale legally in New York City of veal that is four weeks old and that which is six weeks old. The bill of Mr. Hamilton would prevent the interstate shipment of veal calves under six weeks of age and this is wherein it interferes with our conditions. Under our state law veal calves can be slaughtered for food purposes at four weeks of age. The markets of Greater New York on which the veals of our state are sold, has two sources of supply. Those which arrive over the New York Central lines come at 60th street, and the

calves shipped via West Shore, the Erie, Delaware and Hudson and Lehigh have only terminals in Jersey City. That is, all the calves grown in the state and tributary to the New York Central lines could be slaughtered and sold at four weeks of age, whereas the calves grown in the state and tributary to the West Shore, the Erie, Delaware and Hudson and Lehigh railroads with terminals in the Jersey City stockyards would have to be six weeks of age to be slaughtered, ferried across the river and sold on the New York market. These calf bills are not just to the conditions in our state. They strike a severe blow to our dairy farmers and I am satisfied that if there is any person within or without our state who has an honest intent to put a stop to the slaughter of immature calves it can be done in a way not prejudicial to any interest.

I suggest that this society recommend that the calf bill introduced in Congress by Mr. Hamilton be amended to read four weeks instead of six weeks, conforming to our state law which is admirable, and all interests will be amply safeguarded.

New York is rich in diversified agricultural pursuits, the branch ranking the highest being our dairy industry, from which the farmers derive more than eighty millions of dollars annually. The products from the dairies are butter, cheese and liquid milk. The butter and cheese are sold on the markets in a competitive way and milk the only commodity sold regardless of its cost. With the marvelous growth of the great city of New York within the last few years we have witnessed the large cheese-producing sections change to liquid milk centers, and as creameries or shipping stations have been erected, cheese factories in their immediate vicinity have been bought up by interested milk companies to control the price of the liquid milk. Trailing after these new developments, comes along milk inspectors sent out by the Health Department of the city, inspecting the barns and environments of the dairy cow and standardizing the quality of the milk shipped to the city. To meet the requirements of these inspectors buildings have to be altered and changed and many hundred dollars of improvements laid out. In short, one set of officials places a standard on the milk produced by the farmer consumed in New York City and another body of men, the milk dealers, come along and virtually confiscate the dairyman's product. With the fluctuating price of milk paid

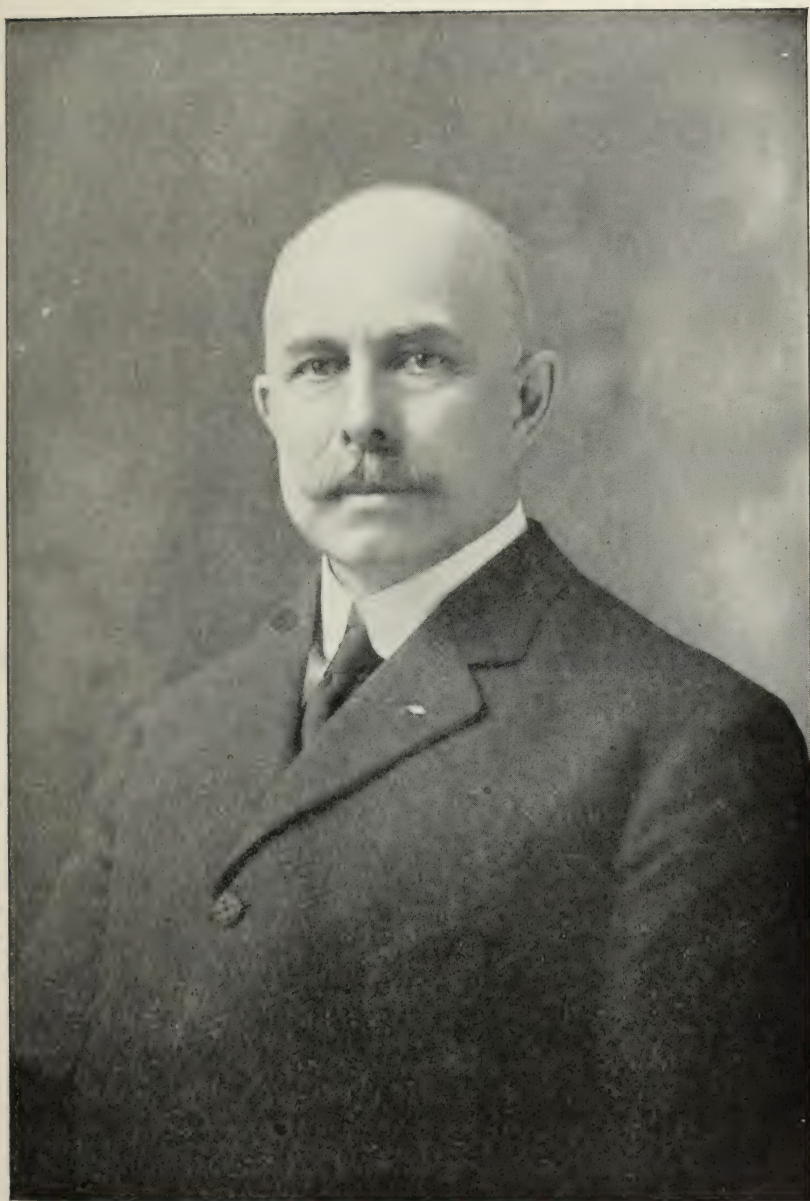
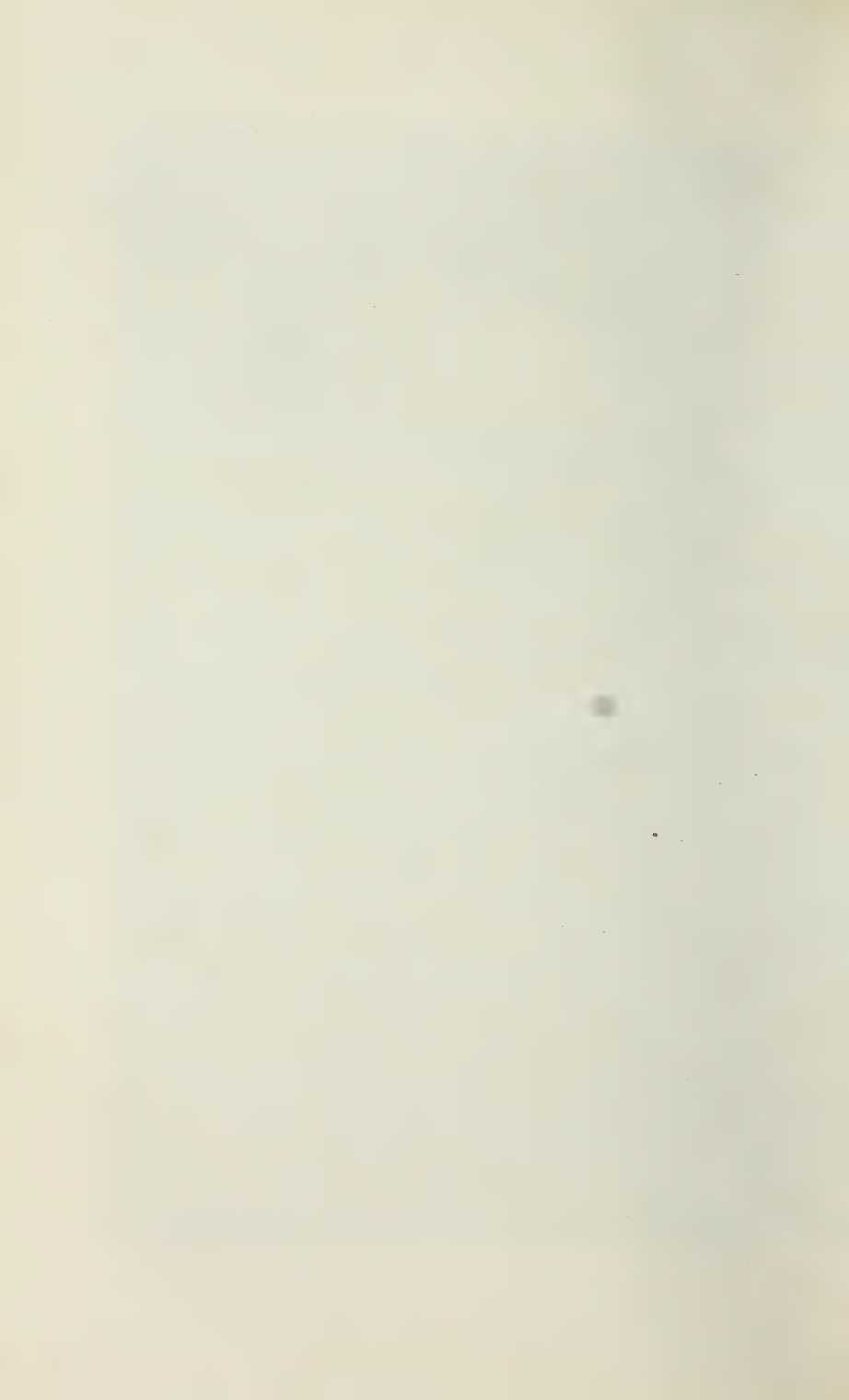


FIG. 229.—C. FRED BOSHAERT, CHAIRMAN OF COMMITTEE ON LEGISLATION.



the farmer by the dealers in Greater New York we find ourselves confronted with serious conditions. Those of us who offer milk to the city dealers and endeavor to receive a price somewhere near what a farmer should receive to make a just return for his investment, have our attention called to the surplus of liquid milk.

Let us see who is responsible for this surplus. Is it not the dealers who have been over-zealous in holding down the price of milk? There is no incentive for the producer to increase his production, and as the flow of milk decreases, the dealers, to meet the demand, have reached out and taken on new territory to keep good the supply.

On the contrary, had the dealers studied rural conditions, as the supply decreased, offered the dairy farmers a price for their milk which would net them a profit on their investment, the dairyman would have supplied more milk and this new territory would not have been needed. It is the adding on of this new territory which has caused the surplus.

Taking into consideration the money of the dairyman invested, the value of the feeds their animals consume, their care and requirements with the restrictions imposed by the Board of Health, the milk produced today by the dairymen of the state is at a loss and the milk-consuming public is slowly but gradually impoverishing the dairy farms of the state.

There should be a standard price fixed for grade B and grade C milk.

This price should be fixed by all parties interested and the producer allowed a fair return on his investment. No one can dispute but that the price paid for milk should be regulated the same as fees fixed for other public corporations and if this can not be done by mutual agreement, the dairy farmers will demand the enactment of law to protect their interest and the great state of New York owes this much to the dairymen. The legislature has enacted statutes protecting its citizens from exorbitant rate of interest, laws regulating the banking and insurance business; it says what transportation rates the railroads shall charge and specifies how many trainmen and baggagemen the train shall carry to promote the safety of the traveling public. Our Public Service Commission regulates the charges of water, gas, electrical,

telephone and telegraph companies and now we are confronted with a condition in the production of liquid milk where the New York Board of Health lays down its regulations and requirements placing a standard on the milk consumed in the city, providing no means for the farmer to obtain any compensation who complies with these sanitary requisites, at an increased cost of production. I today recommend a non-political New York State Milk Price Commission. This commission to be composed of four commissioners, as follows: The Commissioner of Agriculture of the state; one member named by the Executive Committee of the State Grange; one member named by the milk dealers of the city of New York and one member named by the Board of Health of New York. A commission as above would represent the varied interests involved, the state by its Commissioner, the farmers by the representative of the Grange, the retail interest by a milk dealer and the Board of Health who fixes a sanitary qualification on the production of the milk, representing the consumers.

If this New York State Price Commission could be obtained through mutual consent of the several interests involved I most heartily favor this plan. If it can not I urge the enactment of a statute creating such a commission, that justice may come to the dairy farmers of this state who labor fourteen hours a day, seven days in a week and three hundred and sixty-five days in a year, hardly obtaining a livelihood. I do not want to be interpreted as being against the milk dealers or the Board of Health; such is not the case. We have been drifting along with milk prices in this state until the time is fast approaching when something will have to be done. We can not do without the milk dealers and they are entitled to receive, and should, a fair amount of profit for their labors and investment. The Board of Health is justified in placing reasonable restrictions on the milk consumed in New York and I personally know that the dairymen are just as anxious to comply with them, but when they produce this milk at a loss they can not be expected to continue such production without compensation.

THE PRESIDENT: I should like to remark that in the presentation of these reports, which have not yet been before us for careful consideration, no action is necessary as to their adoption. They

are before us for thoughtful consideration. They may go to our Committee on Resolutions and whatever is found wise and best in them can then be brought before us by the Committee on Resolutions and adopted or rejected.

We will proceed now to the report of the Committee on Taxation and Banking, to be given by the Chairman, Mr. W. N. Giles, of Skaneateles.

REPORT OF COMMITTEE ON TAXATION AND BANKING

W. N. GILES

I dislike to commence any report with an apology, but I wish to say that the President appointed on this committee two very eminent and able men and then he gave me the chairmanship, which I supposed was simply an honor position and that these men, both bankers, would handle this subject; but, unfortunately, at a very late date I received the regrets of both of my associates that they would not be able to be here, and they have not had an opportunity of reviewing a proof of what I have said, so it will have to stand as my own.

Your Committee is asked to prepare a report on taxation and banking.

This Agricultural Society must look at the question of taxation from a farmer's standpoint; the tendency to shift tax burdens has been in favor of other interests, and has continually and unjustly placed more and more the burden upon the farm, and we regret the necessity for this report.

The farmer should have no interest in taxation, other than the interest of any citizen, and agriculture should have no interest more than any other vocation. That interest should be, assuming that the government must be supported by tax, that the tax should be honestly and equitably laid, and fearlessly collected, without discrimination, exemptions or favoritisms.

This the farmer asks, not because he is a farmer, but because he is a real patriotic citizen; he asks for no exemptions or favoritisms for his business, and insists there shall be none for others.

The right to levy any tax by a government, is that government, when established, obligates itself to protect the person and prop-

erty of all its citizens, and to do this must take from those citizens, in proportion to their ability to pay, sufficient to enable the government to discharge this obligation; therefore it is so self evident, so axiomatic, as to need no argument. Justice, simple justice and equity require that each person should bear a portion of this burden, in support of his personal protection, and this is well cared for in our system of indirect taxation, both national and state. It is a question worthy of thought, whether this indirect taxation could not be well extended, so that supplemented by an income tax it would cover the entire field of taxation. All property of whatever name or nature, claiming protection of the government, should carry its just proportion of expenses and burden, so long as property shall be deemed the basis from which taxes are levied.

All property, we say, both real and personal, without discrimination in favor of monopolies and moneyed corporations, or moneyed men, should be included. In fact there should not be two kinds of property, known as real and personal, but just property.

The question looks simple and if this plan might be adopted and honestly enforced, our work would be done, and no need arise for this society to deliberate upon the subject, for it would be settled and settled right.

The farmer would then be well cared for just in proportion as all others, and could ask nothing better, but until he gets this true equality he must still ask for and demand it.

Our idea of the meaning of the terms "personal property" and "personal estate," are such as to include everything whether animate or inanimate, which is the subject of ownership, or to which ownership may be attached, either in law or equity, and not forming any part or parcel of real property; it therefore should bear its just share of taxation.

The best interests of the state are subserved by property flowing in its natural channel, and it should not be diverted from its natural course by discrimination in taxing, and we feel positive that, aside from inequality between individuals, it leads to unequal investments to the state's detriment. The state should there-

fore so arrange its laws that all property shall be equally taxed, and then it will be active and doing its part for the state's development.

Money in real estate represents activity, money in personal represents slothfulness. For instance a person holds real estate, he is actively engaged with it, and must be to meet current expenses and pay his taxes, and his activity leads to the state's prosperity; but he finds that he can transfer this property into personal property and evade or avoid most or all taxation, and sit down to the life of a drone, living on his little income, and being of little or no service to the community. There is a public loss, just to the measure of his original activity.

The law still says that all property shall be assessed at its true value, but experience shows that but a small fraction of property known as mortgages pays any tax whatever, and so instead of taking action, that should result in placing this property on the tax rolls, which it would seem was easy to do, the annual fixed mortgage law was enacted, which resulted in a very large source of income. No one ever claimed that this was just, fair or equitable, but merely a plan to get more than the government had gotten before, an acknowledgment of weakness on the part of the state, and acknowledgment that the state was unable to enforce its own laws. We are willing to admit that it brought forth a large amount of property that had heretofore escaped taxation, but yet failed absolutely in equalizing the burdens between the two classes of property; the one, having a fixed and specific tax charge, added to a fixed and specific income, while the other depending upon an uncertain and flexible income was yet obliged to make up the balance that was not produced from this source. Thus, its large revenue producing power was not a justification for it, merely saying to the mortgage owner, "We are not going to charge you a fair tax upon your property, but merely a little because you have refused to pay your just share." But what happened to this annual mortgage tax law? Was it amended or changed to make it more equitable? No, it was abolished and in its stead a miserable subterfuge, known as the recording tax law, was enacted, this recording tax so small as to be

almost negligible, once paid (and generally paid by the borrower at that), then that property is exempt from taxation for the term of its natural life; not a taxation, but really an exemption.

The sponsors for this law do not claim that it is just, fair, or right, but it yields a small revenue, which through the laxity of the assessing officers, or the deception or fraud of the mortgage owners, had escaped. It was easy to collect the annual recording tax; it is easy to collect the present recording tax, it ought to be just as easy to collect an annual equity tax.

Taxes upon real estate, mortgaged or pledged for the payment of indebtedness thereon or otherwise, should be paid by the owner or occupant of said property, their receipt for said taxes should be allowed as payment of interest or principal of said mortgage, and the mortgagee obliged to accept it as such, thus causing the real owner to bear the burden and not the ostensible owner.

The secured debts law, and inheritance tax all net the state a large revenue, but they are subterfuges, and exist only because the state admits her inability to get the tax when and where she should, and expediency prompts her to this. An unjust law or a lax enforcement of a just one, is obnoxious to American manhood.

Many amendments or suggestions are being made to adjust or improve the tax laws, but every one that undertakes to change the fundamental law that all property shall be taxed and taxed equitably, is mischievous and should be combated.

A particularly mischievous bill has been before the Legislature for several years, under various names, first as Sullivan-Short, and again appears this year as Salant-Schaap bill.

The capacity of this report is too circumscribed to admit of a general discussion of this bill, but it is sufficient to say it is a cunningly devised scheme whose ultimate destination is a single land tax. What this would mean to the farming class whose assets are chiefly land, can readily be imagined. It is a direct blow accomplishing what has long been sought by indirection, and this society should carefully consider it and vigorously oppose it. It is now to come as a referendum; this does not change it, but makes it more dangerous. It aims to confiscate our ownership in land and is wrong, vicious and dangerous. Every legislator should be

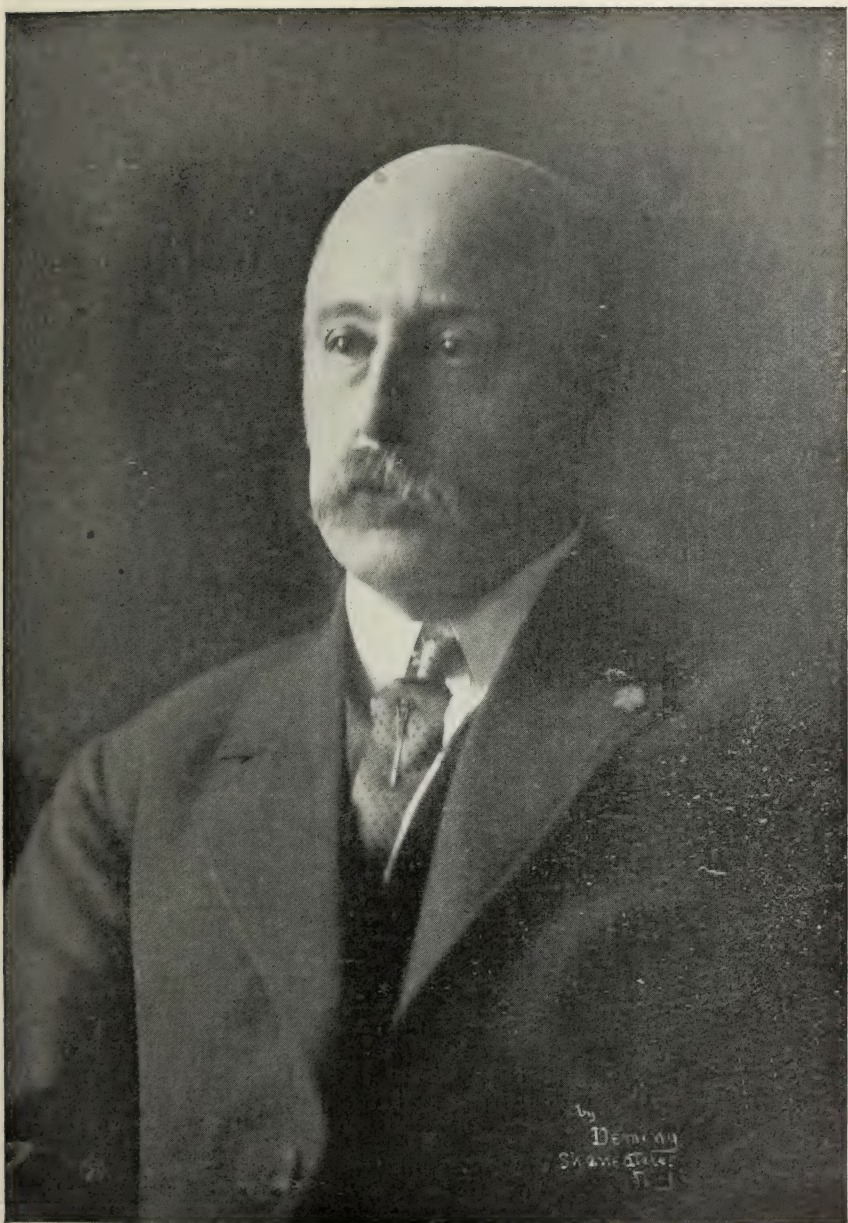


FIG. 230.— W. N. GILES, CHAIRMAN OF COMMITTEE ON TAXATION AND BANKING.

aroused and advised of the far reaching purposes, thinly veiled, of the promoters of this measure by this or any other single land tax scheme.

This astonishing and alarming fact confronts us, rates of tax are growing five times as fast as population increases. Last year 96 per cent. of taxes on property were laid on real estate, and only 4 per cent. on personal. This is manifestly wrong.

The statement that a rigid taxation of mortgages would make loaning money scarce, and therefore prove a hardship on the borrower is more imaginary than real, for money like any other commodity is governed by supply and demand, and will adjust itself to the conditions existing. No man ever loaned untaxed money any cheaper because of its being untaxed. He loans it for what he can get; but if perchance it does have that effect, then the subject of banks and banking, which by the wisdom of the president is to share a part of this report, should come in for a share of our attention. But first let us say, that it is not the part of wisdom to heap unjust tax burdens on agriculture, and then come forward with a system of paternalism to help him to bear this increased and unjust burden.

The present banking conditions do not seem to meet the farmer's requirement, does not grant him the same facilities for financing his operations as other industries and general commerce. This we do not claim is the fault of the banks, but a system has grown up that is not subservient to the best interests of agriculture. It is difficult for the farmer to raise money quickly and at easy rates of interest on his property.

While our farms represent the best security in the world, our farmers are unable to obtain the easy and flexible credit which this gilt edged security would seem to warrant.

The fact that the urban population has increased 25 per cent. in the last ten years, and the rural population only 1 per cent.—thus vastly increasing the mouths to be fed, and only slightly increasing the hands to feed them — has led to an increased cost of living. Many are seeking a remedy for this condition, and all seem agreed that a system of land mortgage banks and agricultural credits is to solve it, and we are pleased to note that this subject is now uppermost in the minds of national and state

executives, and a hearty coöperation of societies like the State Agricultural Society, the grange, and others should be enlisted.

Before we condemn banks and banking conditions, let us first learn what the banks can and will do. Of this I believe we are far too ignorant. Let us learn if there is a widespread feeling among farmers that they need this credit. Our belief is that they do not. From a very extended acquaintance and intimate knowledge it does not appear to us that farmers are seriously handicapped for want of credit, and if it is made possible, that they will avail themselves of it. We believe a campaign of education among the farmers is needed before they would avail themselves of such credit if it were supplied.

The nation and the state can well afford to devise some plan whereby the farmer can secure money on easy terms, to purchase his land, to make necessary improvements, to harvest his crops and get them to market. It is as necessary for him to learn how to use this credit to an advantage. Buying supplies of a middleman on crop time, at a large percentage of profit because of the time allowed, and selling to him when crop is harvested at terms to cover the imagined accommodations, is not business; it is business suicide. It is not high rates or lack of accommodation of the banks, it is because the farmer goes to the bank only as a last resort instead of making it a part of his general plan.

The credit is necessary and if a sufficient proportion of the farmers would ask for secured credit and thus make it an object to the banks, is it not reasonable to suppose that the banks would cater to this business?

Plans are in successful operation in several foreign countries, whereby with the assistance and coöperation of the government, land mortgage banks and coöperative rural credit, have proved a great beneficence to the farmer, of those lands (but do we want farmers like them?) and resulted in National prosperity; whether any of these plans can be successfully inaugurated in America, where every man is a freeman, and every business should be on an equality with every other business, is a question. There is no question but that New York State as a state and the United States as a nation can devise some plan of bettering farm credits, and relieving the strained conditions that now exist.

In the opinion of your committee any legislation for the purpose of bettering farm financing, and farm credits, is a part of a great national or state policy of conservation and food supply and the government should carry out this policy:

That any farm credit association which shall secure any privileges by or under state or federal aid should be composed of farmers, who, realizing its benefits, can and should manage its affairs, and not be managed or dominated by capitalists.

That the commercial banks which deal in short term, quick returnable loans, can not meet the agricultural requirements of long term, small annual or semi-annual payments of the farm mortgage, and a comprehensive plan covering these necessities, should be inaugurated by the present banks, or banks established for that purpose be provided by the government.

The government might borrow money at a rate of $3\frac{1}{2}$ per cent. and loan it at a rate of $4\frac{1}{2}$, thus protecting itself, but those desiring these loans should form large coöperative borrowing associations, thus spreading the risks over a large area and reducing the risk to a minimum.

This subject is worthy the thought, study and active interest of every one interested in agriculture, and it is the hope of your committee that the deliberations of this society shall take such definite forms that, coöperating with his excellency, Governor Glynn (who is demonstrating such a patriotic interest in the subject) a workable, feasible plan of American Agricultural Credits may be established.

THE PRESIDENT: I am sure we all appreciate that we have listened to a very carefully considered and well brought out report. I want to say, in compliment to Mr. Giles, that on the matter of taxation I believe this is the best presentation of a fair and equitable distribution of taxation which I have ever listened to.

We have another report than which no other is more important, to be given by the Chairman of the State Standing Committee on Coöperation, who is also Chairman of our Committee on Marketing and Transportation. This report will doubtless cover some of the common points made in the report of the Committee on Banking, because any consideration of either subject covers a broad field. Mr. John J. Dillon, publisher of the Rural New Yorker.

REPORT OF STANDING COMMITTEE ON COÖPERATION

JOHN J. DILLON

The fact that I have two reports in one will make it a little longer, and I will have to ask your indulgence in giving the two reports.

The State Standing Committee on Coöperation was created to coördinate the different individuals, associations and institutions, who believed in the principles of coöperation, with a view of unifying them in one concentrated effort for the economic production and distribution of farm food products. This included coöperative organizations, the State Grange, Patrons of Husbandry, agricultural colleges and schools, agricultural publications, economic and philanthropic associations, the Housewives' League and public-spirited citizens, who are willing to devote some time to public good. Every measure initiated by the committee has had the prompt and hearty support of these men and women and organizations. Whatever has been accomplished is due to their support and influence. For nearly two years we have worked to lay a foundation for a coöperative structure, and we believe that we are now ready to raise the timbers.

During the preceding year we have succeeded in securing laws for the organization of coöperative producing and selling associations, and for the organization of coöperative personal credit unions. We also secured the appointment of an assistant commissioner in the Department of Agriculture to promote and help organize coöperative work in the state. After fifteen years of effort we succeeded in passing a law to regulate the sale of farm produce on commission in the state.

To complete our work we yet need an enabling act to permit the organization of a coöperative system for the financing of land mortgages. A committee appointed by the Superintendent of Banks, in conjunction with the commission to revise the banking laws, has been working on this measure for some time, and a bill is in state of preparation. This measure provides the means by which a number of land owners may form themselves into a local organization under our existing savings and loan laws. The new provision authorizes the organization of a land bank clothed with

the power, under proper restrictions, to issue bonds to secure money to finance the mortgages. The use of the bank will be a privilege accorded the borrowing farmer, but not a duty imposed upon him to use it. Heretofore the farmer has been obliged to appeal for farm loans. He contributed to the funds of the national banks, to fire and life insurance companies, the savings banks and trust companies, but he could not depend on these companies for a mortgage loan. These institutions are in the control of the creditor classes. The mortgage debtors must approach them, if at all, with diffidence and apologies. If he gets a privilege he must pay the demand for the accommodation. The debtor has little to say about the terms. This land bank will put him on an equal footing with the money lender. It will put him in control of a mobile asset that will sell on the open market on its merits. In it he creates an institution that will standardize land values. It fixes his realty credit and negotiates on his behalf and on his terms for the use of money at current rates for other high-class security. He will not get something for nothing, but he will be able to sell his own credit on short or long time payments, and at rates not dictated by the exigencies of his situation but by the current rate for money at the time of the transaction.

While we secured the appointment of a deputy commissioner last year to encourage and develop coöperative work, we did not secure an appropriation for his expenses, and consequently the work has not progressed as rapidly as we could wish. A beginning, however, has been made, and with the encouragement now in sight, we look for aggressive work during the coming year.

The commission bill has worked many reforms in the New York City market. Commission houses are now operating under a license by the Commissioner of Agriculture and are under a bond of \$3,000. Some of the worst offenders of the past have been driven out of the business entirely. Their records were such that some of them did not have the hardihood even to apply for a license. Others who had neglected the payments of shipments for years hunted up their old neglected shippers and squared accounts. In the whole trade there has been an air of accountability that did not previously exist. There are, however, two defects in the present law that should be remedied. Both of these defects were caused

by eliminating two provisions from the original bill of last year. Under the bill as amended, and as it now stands, a commission merchant may sell farm produce shipped to him on commission, or he may buy it for his own account. He should not be allowed this privilege. Under this law he is not compelled to keep a record of his sales. In consequence, in case of complaint the shipper is not able to verify the sale and is entirely at the mercy of the dishonest commission merchant. In one instance where we insisted upon knowing where the goods had gone we found they had been sold to another dealer with an unsavory reputation and against whom we already had an unsatisfied claim. A bill is under preparation to rectify these two defects of this important law.

In the progress of this measure through the Legislature last year, in addition to the members of our own committee, we had the enthusiastic assistance of Honorable Franklin D. Roosevelt and his successor, Honorable Clayton L. Wheeler, in the Senate; and of Honorable Marc Cole in the Assembly. In the preparation of the bills, and in creating a public sentiment for them, we were greatly assisted by Honorable Seth Low, Honorable William Church Osborn and Mr. Edward F. Howell, of the League of the Savings and Loan Associations of New York State. The committee was without funds and in this situation the gratuitous service of Mr. Osborn's legal office was especially appreciated. Where interest and support has been so general it may seem unnecessary to make distinctions, but the criticism is often heard that farmers are ungrateful and unappreciative of services rendered them. We will not discuss the merits of the criticism now, but we may acknowledge a genuine service from men outside our own ranks and thank them for it without in any way detracting from the merit of the work performed by our own membership. And this tribute to the friends of our cause would not be complete without acknowledgment of the interest and sympathy manifested in it by Governor Glynn. He has promised us his support, not only for the legal machinery for the work but also for the means to put it in operation. His practical grasp of our needs and his vigorous insistence for results is the most helpful impulse that has yet been given to the improvement of our agricultural condition through coöperative effort.

REPORT OF COMMITTEE ON MARKETING AND TRANSPORTATION

JOHN J. DILLON

I turn now to my report of the marketing committee.

During the past year your Market and Transportation Committee collected 743 claims for farmers, aggregating \$10,112.91. During the four years of its work it has collected 2,240 claims, amounting to \$42,215.50. Of these claims collected during the past year, 153 were against railroads and express companies for lost and damaged shipments and the balance mostly against commission houses and dealers. Some of the complaints arose from misunderstandings, but many of them were attempts at pure robbery. The express and railroad claims were for the most part small and were not sent us until the shipper had exhausted his efforts and his patience in attempting to collect the claim himself. Most of the other complaints would be uncollectible in law and practically all of them were such that the shipper could better afford to lose the account than to assume the expense and time necessary to enforce payment in the courts. In many cases a judgment would be of doubtful value if secured.

Your committee has also given much attention to the subject of market conditions in New York City. Conditions there could hardly be more extravagant or wasteful if they were maliciously designed. There is no provision there that could properly be called a market. The city owns some lots of land with antiquated buildings, in which it rents out stalls for the sale of food products, just as any other landlord might do, at a more profitable rental; but there is no regulation for the protection of either producer or consumer who patronizes them. Perishable food products are rushed to that center by rail, steamer and boat, and now by auto express. It is left to the tender mercies of transportation employees; to unionized truckmen; to commission men; to jobbers; to speculators, and to retailers. There is no provision to care for the damaged, the neglected, or the surplus shipments. As a result complaints from shippers are numerous. Total losses are frequent, and the producer who gets a prompt return for 35 per cent. of the consumption price is always fortunate, and sometimes content. At the time of the organization of this committee a project was

under way to spend twelve million dollars of city money to establish a large market structure near the present site of West Washington Market. This did not meet the needs of the city and could only perpetuate and magnify the present unsatisfactory conditions. A protest was made against the project by this committee and the Housewives' League, and it was finally abandoned. A committee is now at work on a comprehensive plan for a series of markets to be under municipal control and regulation; and it is hoped that measures along these lines may be perfected and adopted.

The marketing of farm products is essentially the problem of the farmer. He can not safely entrust it to others. So long as middlemen monopolize it, it will be at the expense of producer and consumer. If the municipalities should undertake it, it would naturally be conducted for the benefit of the consumer. So far in this state the middlemen have practically had a free hand. There has been little or no organized attempt even to supply local markets, and the individual farmer can not give a satisfactory service to local dealers or local consumers. Hence we see fresh farm produce shipped from interior towns to large cities, there repacked and shipped back again in definite quantities to the country towns. The produce has deteriorated in value and the expense of two transportation charges and one or more dealers' profit must be paid by the local dealer, and the consumer pays an extra profit for the privilege of getting the exact quantity he demands.

But the products of the neighboring farms are not always returned from the metropolitan markets to local towns. In many lines this trade has been secured by the better systems of salesmanship adopted by other states. Go through the small towns of New York State during the producing season and you will seldom find on the hotel tables or in the markets of the towns the fresh products of the neighboring farms, but you will almost invariably find California fruit and bananas. We grow in New York State some of the finest quality apples in the world, but we leave the packing and the sale of them to such an extent to speculators and jobbers that as a distinct food New York apples are unknown to the consuming public. This condition is so general that it is beyond the control or correction of the average individual grower. Last year a Columbia county, N. Y., grower went to the city with a shipment

of finely sorted and graded Baldwin apples. He was unable to sell them at any better price to the jobbers than if he mixed the ordinary grades in his barrels. He was told that there was no recognition of his superior apples in the market that that they would sell for no more than the ordinary pack. Go into the hotels and restaurants in New York City and into the dining cars of most of the railroads of the country and ask for baked apples and you will get a western product. I have protested at various lunch places, including the Pennsylvania station, and have always met with the excuse that the steward was unable to get a uniform grade of New York State apples. The steward at my own hotel has persisted in the same complaint. The organizations of the West have simply gone about the sale of their products in a business way and, by superior salesmanship, have secured a preference for an inferior article in our own markets. Our flocks have vanished from our eastern hillsides, and our fields and feed stalls have given up their meat-producing animals to the pressure of the monopoly of our markets and the coercion of our butchers by the meat packers of the West. With subtle irony they now complain that the eastern farmer has abandoned the production of meat-producing animals. The conditions are right now for the revival of this industry, but if we give ourselves exclusively to the production of it the packers will again find a way to appropriate its profits to themselves.

We must begin at the beginning. We must establish marketable packages and brands that will specify in quality and quantity of weight or measure the exact contents of the package, and that will be accepted without question at its face value in the markets of the world.

Generally speaking, local markets are the best markets. We are fortunate in having many of them in New York State. We should develop them and control them by the simple process of giving better service and better and cheaper food than can be secured elsewhere. The individual farmer can not do this because he can not furnish a steady supply. It must be done by assembling the food products of the neighboring farms in a common market or warehouse and supplying the local trade from this center. To effect this the local growers should be organized in coöperative so-

cieties with packing and shipping facilities, and in some sections with cold storage and manufacturing plants to take care of surplus products. These local units or societies could be coördinated in one central agency with representatives in the large markets of the country to direct the shipment of surplus products where they would find the most ready demand and the best prices.

In proposing this organized work we are invariably met with the assertion that it can not be done because farmers will not, they assert, stand together. I meet this criticism with the answer that farmers are in this respect no different from any other class of business men. Gentlemen's agreements have never yet produced permanent results. I have seen it tried by farmers, by brick-makers, by clothiers, by grocers, by barbers and by publishers, but the gentlemen agreements were never adhered to for long by all of the parties to it until the interests were bound together in a legal contract that neither of them could violate at will except at his peril. Farmers can not play hide and seek with a coöperative company and expect satisfactory results from it. He must enter into contractual relations with his own company just as he would with any other company, and he must bind himself to live up to that contract in all its details just as he would with any other contract. If a creamery company organizes to handle the milk of 200 cows and half of the members are led to withdraw because some milk dealer is interested in the destruction of the company and offers individual members an eighth of a cent premium for their milk, the creamery can not be maintained at half its capacity, and unless the producer is willing to become a member and bind himself for a definite time in a definite contract, he does not become a member of the association and is not entitled to its privileges or benefits.

To be successful, coöperative organizations must have legal organizations and be operated on strictly business lines. They must be independent and self-supporting. Statutes, however, will not create coöperative organizations. The farmer does not have the time nor the experience, nor in all cases the information and the facilities for organization work. It is, however, important to the whole consuming population of the state that facilities be provided for the saving of products now going to waste, and for the economic

distribution of all farm food products. Hence it is the proper function for the state to help organize food distributing associations as part of the agricultural educational work of the state. It will require men trained in the principles of coöperation and business to discuss the plans, purposes and benefits of the organization with producers throughout the state, and to organize these coöperative associations, and help direct and develop the business. If this is to be pursued under the Commissioner of Agriculture, an appropriation of \$30,000 will be needed. The alternative to this is a State Marketing Commission, clothed with the authority and charged with the duty of organizing producers in local units; of establishing and maintaining markets and slaughterhouses; of assembling food products, and prescribing packages, grades and measures; of inspecting foods and regulating their sale and distribution; of preserving surplus, developing local markets and directing shipments to centers of greatest demand. I grant that a perfunctory commission would be worse than useless, but the possibilities of the work are vast and enduring enough to fire the ambition and to inspire the energy of genius; and the man or the administration that undertakes it and measures up to its opportunities will meet the everlasting gratitude of future generations. This is a departure that is coming. That thousands of people should go hungry in the city while food is rotting on the nearby farms is a disgrace to our boasted civilization and an insult to a bountiful Providence. It is impossible that we should be permitted to abuse the generousities of God indefinitely. The socialist and the anarchist already capitalize our negligence to promote their own vague and sinister theories. They find willing listeners in homeless men, ill-clad women and hungry children. No one defends our present system of distribution, and nothing stands between us and ultimate socialism or anarchy but a fair distribution of wealth through the coöperative control of the men and women who produce it.

Nearly two centuries ago, when England was depleted by wars and importing large quantities of food, Dean Swift issued the familiar dictum that, "The man who caused two blades of grass to grow where one had grown before becomes a benefactor of mankind." Some weeks ago we undertook to show that the farmer

could hardly expect to benefit himself by doubling the production of a crop which was not now selling for a price to cover the cost of production. A good friend of large affairs took us to task and asserted that our doctrines were treasonable; that so long as there were poor people in the cities and towns suffering from the want of sufficient food and clothing, the farmer should be encouraged and stimulated to produce food and material for clothing in the greatest abundance. Our reply was that so magnanimous a purpose of this kind ought not to be monopolized by farmers but ought to be a universal practice, and if it was a good policy for the farmer to adopt that rule it ought to be an equally good policy for men in other lines of business to adopt it. He is a manufacturer of fertilizers and we asked him why he did not double his product each year and accept the price established by the demand of one ton for every two tons of product? He is interested in a shoe factory. We asked him why his factories did not make two pairs of shoes for every pair that was worn out? He is interested in transportation lines. We asked him why he did not duplicate his railroads and his steamboats to furnish cheaper transportation? We asked him why the clothiers did not make two coats for every one that was sold, and why the bakers did not produce two loaves of bread when they had a market for one? He has not had time to reply to these inquiries. I doubt if he is occupying the time in developing plans to duplicate the productive facilities of his numerous enterprises. But this two-blades-of-grass theory seems to have been accepted without much question. The state has been liberal with us in the matter of appropriations for agricultural education with a view to increasing the products of the farms. Even when the products in hand can not be sold at the cost of production the best that we have been able to offer is a little instruction on conservation and fertility of the soil, and in more efficient measures of production. We have spent liberally for education along these lines, but the permanent occupation and cultivation of our farms is an economic and not an educational problem. Education and persuasion will not keep men on the farm. If we want a liberal and a permanent food supply we must pay a fair award to the man who produces it, and we can not improve economic conditions by simply increasing general production. The individual

farmer will, of course, profit by increasing his production, provided the general supply is not increased beyond a fair demand, but experience has demonstrated to us over and over again that large general production usually results in smaller prices per unit. Some of our small crops this year are worth many millions in dollars and cents more than the bumper crops of the same product in recent years of the past.

I would not be understood as indifferent to the claims of those who are in need of food and clothing. It is the duty of the community to care for its worthy poor, but I insist that this duty does not apply to the farmer alone, and that, as a business and economic problem, he must plan like other men to produce in ratio to the demand in order to produce at a profit. While food products were abnormally low the consumer was little concerned about the extravagance and waste in the distribution of farm food products. At worst the price to the consumer was not a hardship. The farmer accepted the inevitable of his 35-cent dollar; the middleman took his 65 cents and all were happy. But when the cost of living began to advance, the consumer began to feel the burden; and investigation has revealed the fact that of the estimated \$500,000,000 worth of food products consumed in the city of New York alone the people of that city are paying more than \$300,000,000 annually for distribution. This does not take into account the losses and waste of deterioration and condemned products in the city. Nor does it include in any way the waste through losses and expense of returning products to inland towns and through the waste of products that rot on the farms because the producer is unable to secure enough for them in the markets to pay for packing and transportation.

Our concern is to save this waste. Economists have pointed out to us the possible shortage of food in this country if present ratios of production and increase shall continue for twenty-five years, and they have warned us that it will become necessary in the next quarter of a century to import food to feed the people. They calculate on the basis of our present system of distribution. They have not guessed the possibility of the production of American farms under a system that would return the farmer a fair reward for his labor. The farms of this country produce three-fourths of

the annual wealth of the country. The non-producers manage to get possession of the surplus savings. The workers produce; the idlers and non-producers save. This saving we call capital, and the producer must go hat in hand pleading to the non-producer for the use of it. We are trying to devise a system by which this saving or capital will remain in the hands of the men who produce. If we are successful, the product of the American farm will be sufficient to feed the people of the world for generations to come. Our initiative to this end is the development of the coöperative measures to finance agriculture and to establish modern systems and skilled salesmanship in the marketing of farm products.

THE PRESIDENT: It really seems too bad that we can not throw open our meeting for general discussion, but we have two more papers to come before us this morning and we shall hear one of them; the other may be postponed until the two o'clock session. I surely trust we shall have opportunity this afternoon for some discussion on these matters, most of which in a manner overlap one another in the reports.

It is very natural that in the vicinity of New York or down the Hudson Valley, producers should have kept in possibly closer touch with New York City market conditions than those of us in the northern part of the state, and should have started in some way coöperative producers' associations. One successful example of this kind is the Hudson River Fruit Exchange, and we have with us a gentleman who has been largely interested in the success of that institution. I am pleased to introduce Mr. Lucius C. Tuckerman, of Milton, N. Y.

ONE COÖPERATIVE SUCCESS, AND A PLAN TO LIQUEFY MORTGAGE CREDITS

LUCIUS C. TUCKERMAN

There seems to be need of the discussion of coöperative measures and a great demand for information based on experience, and I am going to ask your indulgence in presenting facts that may seem of a personal nature because the Hudson River Fruit Exchange is very much of a personal matter with us.

In March, 1912, Mr. C. E. Thurston of New York, and Mr. W. Y. Velie of Marlborough, called upon a number of farmers in the district from Newburgh to Highland to discuss a plan for co-operation among the fruit growers of the Hudson River Valley with a view to improving our marketing conditions. The result of their efforts was a meeting of some forty men in Milton, when the subject was discussed and a committee of five appointed, of which I was one, to draft a constitution and by-laws for a co-operative association, and report at a meeting a fortnight later.

The committee finally adopted the following preamble: The object of this exchange shall be to encourage the coöperation of the fruit growers of the Hudson River Valley for the protection and advancement of their common interests.

1. By securing and disseminating such scientific and practical information as shall promote the general advancement of the fruit growing interests in this district and shall tend to the improvement of the quality and quantity of our products.

2. By securing such legislation as may be advantageous and preventing that which may be detrimental.

3. By securing such improved facilities in transportation as shall tend to give us more expeditious and economical distribution of our products.

4. By endeavoring to secure a better and more uniform system of packing and package.

5. By devising some system of marketing our products, as shall open up and develop markets, and to give the growers a fair and remunerative return.

6. And endeavor to obtain such improved system of crop reports as shall furnish accurate information concerning production, thereby enabling the fruit growers to know the exact situation.

7. By coöperative purchase of such supplies as are needed by the members.

We determined that it would be advisable to incorporate a company, venturing slowly, as this was a new deal to us all. We set the capital stock at \$2,000 divided into 100 shares at \$20 each, no member to own more than four shares. Stock does not carry voting power. Each registered member has one vote only in the Hudson River Fruit Exchange, Inc.

The government is vested in an Executive Committee of five who were chosen in 1912, one for three years, two for two years, and two for one year. As these terms expire members are elected for terms of three years. We thus always have three men familiar with the work. The committee annually, from its members, appoints the officers for the year. All are subject to recall by the exchange.

Three articles of the by-laws should be read in full:

Art. VI. Members of this exchange bind themselves when consigning fruit, to ship only to commission houses or auctions duly designated by the exchange. They also agree to ship all fruit up to grade under the label of the exchange, and fruit not up to grade without the label.

Art. VII. Fruit sold through the exchange f. o. b. shipping point or on track shall pay to the exchange a commission of 3 per cent. of the gross price. In such cases the exchange stands behind such sales and guarantees the price to the grower. The members reserve the right to negotiate private sales on which no commission shall be due the exchange.

Art. VIII. At the end of each fiscal year, after all the expenses of the exchange shall have been paid, the Executive Committee shall from any surplus remaining, declare a dividend not exceeding 5 per cent. on the par value of shares issued. The entire balance of such surplus shall be distributed among the members who have shipped fruit through the exchange during such year in proportion to the value of their respective shipments.

The last sentence of Art. VII caused much discussion and many members feel that it should not be in, and we have made efforts to have it removed, but I regret to say that it still stands. I shall take up this matter later on.

It was May before we were incorporated and ready to begin work. As secretary-treasurer it devolved upon me to find a manager. Answers to advertisement were varied and curious, but a man in Minnesota seemed to fill the bill, though many members felt that anyone totally unacquainted with this region would never do. But this man's references were so good and his letters were so clean cut that I wired him to come on and we hope he will never leave us. I tell you this because the manager is the heart and soul of any coöperative concern.

It was June when he took hold, an utter stranger in the community, with thirty scattered members willing to try an experiment. That was about the size of it. But the manager hustled.

Our commission men were chosen with a view to concentrating our shipments to prevent competition with ourselves and to let buyers know just where our fruit was to be found. The houses chosen were naturally men we were used to and had confidence in. The custom in our section has been for such houses to pay their agents 3 of the 10 per cent. charged the farmer for selling. We arranged with most of our houses that the exchange be made agent and receive that 3 per cent. on all produce consigned by members of the exchange. That was to be our source of revenue.

Mr. Hilderbrand, our manager, arranged to supply complete market reports to our members each morning by phone. Until then few of us had been able to get any reliable reports, and the custom of the many local buyers had been to use this ignorance very much to their own advantage. For instance, those buyers receive from their houses in berry time 10 cents per crate for buying, and each morning receives word as to what they shall pay, let us say, for strawberries that day. Supposing the price given them be 10 cents per quart. Under the old system the buyer paid what he could make the grower accept, and pocketed the balance. The exchange entered the field and paid the full daily price as well as giving complete market reports, with the result that for the first time in our section the local price of berries was kept on a par with the wholesale prices in the eastern markets. This made men take notice and in spite of the hardest kind of knocks from buyers and outside commission men we began to receive applications for membership.

In this connection let me go back to Art. VII of our by-laws. The last sentence reads, "The members reserve the right to negotiate private sales on which no commission shall be due to the exchange." Members received the service of the exchange in market reports and daily prices, and being fully posted would sell to outsiders at those prices to save the 3 per cent. which they would have paid if selling through the exchange. They refused to consider that it was the exchange which made those sales possible, stating that they were only in it for what they could get out

of it. You can see how much fairer to all it would be if all sales f. o. b. paid the small commission to the exchange, and how much stronger the Union would be.

In 1912 our fall fruits were practically failures, and we took up the buying end. Oats were then selling locally at 66 cents per bushel. Mr. Hilderbrand landed the first carload at Milton direct from Minnesota at 38 cents. More applications for membership! Cheered by that success, he began on bran, middlings, scratch feed, flour, etc., and that first winter sold twenty carloads at a saving of some \$2500 to our members. We now buy our flour at \$5.25 per barrel landed at our stations of a grade that we can not duplicate there for \$7.50.

We then turned to spray materials and fertilizers. Average prices for commercial lime-sulphur had been \$9 or \$10 per barrel. We cut it to \$5. We also furnish sulphur and lime to those who cook their own stuff at about the same saving.

The first year we bought some 250 tons of chemical fertilizer of all sorts at an average saving of \$5 per ton. This included a goodly amount of ground rock (acid phosphate) which as you know sells around \$12 or \$14, and pulls down the saving average.

On all these purchases the members paid 3 per cent. to the exchange.

The first season our actual paid in cash capital was about \$500. And on that we did a business of over \$110,000. And we ended our first year showing a small margin over and above all outlay in the treasury of the exchange, but with savings profits to the members on purchases and sales of several thousand dollars.

Our second year started with about \$1,200 capital with which we did a business of over \$23,000. Of this some \$30,000 was f. o. b. sales by the exchange. Strawberry and pear buyers came to us and stayed through the season. The ordinary commission house considers five hundred crates of strawberries a day as large business. There were many days last season when the exchange sold eight to nine hundred crates a day for its members.

About 3,000 barrels of pears were sold to England and a beginning made with apples. Sales covered a wide territory, as our fruits were shipped as far west as Wisconsin, and south into Florida. Some ten carloads of currants were sold experimentally.

We have bought to date some 25 carloads of feed and twenty-one carloads of manure at a saving of about 25 per cent. The purchases have amounted to \$11,000, which does not include this year's fertilizer, upon which we have even lower quotations than last year.

We now have 84 members, and the Executive Committee has decided to recommend that our capital stock be increased, in order that there may be room for those who seem to want to join. Also with a view to providing capital for greater work.

It seems certain from the experience of this year that next fall we will hire cold storage in New York City and keep our own man there to bill out our apples as wanted for our widening markets.

I do not want you to leave here with the impression that everything is rosy and plain sailing with such a proposition as I have been talking about. We began small and we are still creeping along, for it takes time and patience and much work to raise a successful coöperative plan among people who are not used to the idea of working together. In our section I think we are, on the whole, slowly learning the lesson. We have taken up the easiest and most obvious needs. We have not yet reached the point where we can have an absolutely fixed grade and pack for each of our fruits, because we have been going it alone so long that we have not yet been able to merge. But we are improving, and intend to keep on, though some do not take kindly to proper grading, with the inevitable exposure of their slack methods. This was particularly the case last year, when we had to turn down a hundred barrels of pears which our customer justly refused to accept. In fact, he behaved much more liberally in the matter than was to the best interests of the exchange, for every sharp object lesson would have been of great value.

And we are looking ahead to the time when we can use our exchange for much wider purposes than now. We see no reason why we should not have our own fertilizer plants, as the Monmouth County Exchange in New Jersey has; our own package factories, canning factories, cold storage, etc. We would have our own fruit trains to New York now if there were room in the Weehawken yards to unload. But there we are up against the milk trains of the West Shore, O. & W. and Ulster & Delaware

roads on one side and the trackage of the National Express Co. on the other. But we shall work that out in time. Now we are obliged to ship by express unless we want to risk the delays of boats at about the same rates.

At the meeting of this society last year, reference was made to a cement deal where a concern, after selling direct to farmers, found a combination of dealers against it in that district, and the claim was made that much business was lost thereby. That is purely an economic matter. If that concern was selling satisfactory cement direct to one group of men, it is more than likely that others in the same neighborhood would quickly avail themselves of the opportunity, and the company would find that its business tended to grow, in spite of opposition by the dealers. Opposition to our exchange has stopped at nothing so far in the effort to put us out of business, but we notice that concerns having fertilizer, feed, etc., to sell seem very anxious to deal with us, and now even outside commission men are applying for appointment by us, where at the start they scoffed.

But further still than this: We all know that the farmer has had to pay 7 and 8 per cent. and more for money in the past. Each of you doubtless knows of men in your community who have made fortunes lending money to farmers on mortgages, usually at the highest rate that they were able to squeeze, and you all know of good, industrious neighbors who have been forced out because they could not meet short term notes. No other business in the world has better security than we have, and none other has so much trouble getting money on terms to enable us to make permanent advance.

We suddenly found when our exchange wanted to buy stuff by the carload, that our notes were welcome at the banks. As one banker, who knew all about our little \$500 said to me, when I wanted \$1,500 for the exchange, "Why sure, and as much more as you need." It was our joint credit he was sure of. And it is that joint credit that has made possible the really tremendous business we have done. Why not go a step further in coöperation and use that joint credit which hitherto has lain idle and gone to waste?

Today in New York State, we have to borrow money from men who must have it repaid in a lump, and who either can not

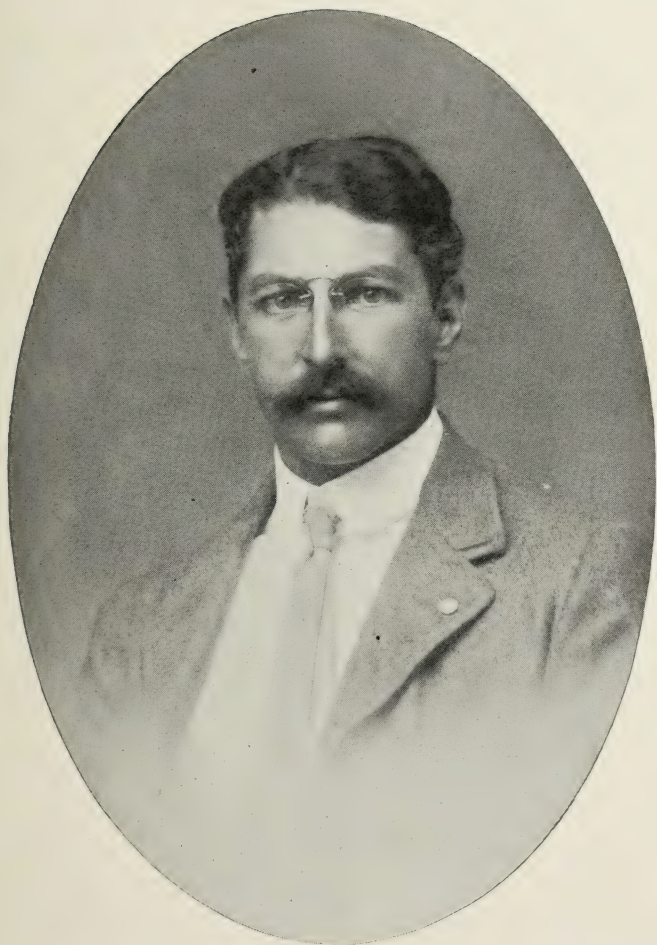


FIG. 231.—LUCIUS C. TUCKERMAN, MILTON, N. Y.

or will not grant, as the case may be, any but the shortest terms. Their money must come back to them ready for reinvestment, which precludes payments spread over a term of years. In France and Germany they have systems of land bonds guaranteed by that same joint credit that has helped our exchange. These bonds bear a certain interest, in addition to which those for whom they are issued pay yearly an additional 1 or 2 per cent. toward their redemption, which is charged off the debt. In brief, the system is a Central Land Bank whose members are associations in many communities. Any member of an association may apply to it for a loan. The application is passed upon by the association to which the applicant belongs, men thoroughly familiar with local conditions. It is then passed to the central organization, which offers the bond for sale. Guaranteed by the joint credit of the whole system, such bonds rank with the best government bonds as investment securities and are in steady demand. Those bonds run for long terms of years — forty years being common.

Last year a bill was passed by the Assembly, and reached its third reading in the Senate, to enable us to do that very thing. This year a similar bill will be introduced under the auspices of the new Banking Commission, with every chance in its favor, and it will pass if each and all of us does his share toward pushing it. And this bill is based on proven coöperative principles, proven not only in France and Germany by a hundred years of experience, but proven right here in New York by the many flourishing savings and loan associations. These have devoted themselves to local city and suburban needs. The proposed bill will unite them all and open the door for rural associations to come into a tremendously strong joint credit plan whose bonds will be as steady and reliable investment securities as any government bond, because backed by that form of security which can not run away and can only increase in value as time goes on. When once the land bank is established there is no reason why our growing exchange should not look forward to membership in it, and our members be freed from the tyranny of private money lenders or the short term note which is all our banks can give us. We look forward to that end as one form of future activity, and we have learned that it is possible by actual experience in our exchange work.

But first of all each community must make its little start as we are doing and take its lessons in working together, giving and taking, living and letting live, for that is what coöperation means. Some will never learn the lesson (we have some), and they will have to be weeded out or left out.

I have not read this paper to preach an ideal, nor have I read it to advertise our exchange. I have read it to show how we are trying to make more money than before by cutting out the middleman where we are consumers, and to find better ways of marketing, that we may get more than a 35-cent dollar.

It seems to us that there is a big field for work between exchanges. Many here must produce things that we need to buy. We produce things you want to buy. By dealing direct I am inclined to think we could do much business to mutual advantage, and our exchange would be more than glad to hear from others along these lines.

THE PRESIDENT: These are just the kind of reports we like to hear, of actual accomplishment along the line of things we are attempting to develop. We have another paper which we will hold until just after luncheon. I believe it is better at this time that we adjourn and that we come together promptly, if possible at quarter before two surely so that we can launch the work at two o'clock sharp, and then we will have opportunity to discuss the matters, after hearing Mr. Parker's paper.

If there is nothing more we will stand adjourned until quarter before two.

AFTERNOON SESSION

THE PRESIDENT: I only wish to say to those who are not now members of the society that there will be ample opportunity given for you to mend your ways and in the hall you will find a gentleman in charge of membership blanks and slips who will receive your fee and take your names. We also have headquarters with a gentleman in charge at the Hotel Ten Eyck, where a similar office will be performed for you.

It seems to be necessary, in view of the many matters that have come before us for consideration, that we have a Committee on

Resolutions, and I will entertain a motion for the appointment of such a committee.

Motion made and carried that such a committee be appointed.

MR. TUTTLE: I would move you that on the presentation of any resolution, it be read and referred to the Committee on Resolutions, without discussion, to be reported on later.

Motion carried.

THE PRESIDENT: I would name as the Committee on Resolutions: W. N. Giles (later changed), H. O. Palen, James W. Wadsworth, Jr., J. J. Dillon, C. W. Burkett.

MR. WINTERS: I move that the Chair appoint a committee of five on nominations.

Motion carried.

THE PRESIDENT: I will announce that committee before the evening session.

I shall call to the Chair to preside this afternoon Honorable James W. Wadsworth, Jr., of Mt. Morris.

MR. WADSWORTH: Mr. President and Members of the Society: Let me express my appreciation of the compliment you have paid me in asking me to preside over this body. We have considerable discussion to listen to this afternoon and preliminary remarks by me would not be in order.

I have been informed that one of the gentlemen who is to read a paper this afternoon finds that he has to leave town within a few hours — the Honorable Marc W. Cole — and so, with the permission of the society, I would beg leave to call on Mr. Cole now, out of the regular order, that he may have an opportunity to leave town when he desires.

WORK OF THE STATE BUREAU OF COÖPERATION

MARC W. COLE

It may be considered presumptuous for the Bureau of Coöperation to present to this Agricultural Society an extended review of the coöperative movement in this state, because the bureau is in reality only a child of this society, and its observations may have many of the errors of youth. It is necessary, however, to make some general statement about the condition of the field of coöpera-

tion in order that you may have a full understanding of the bureau's work, difficulties and hopes.

In the entire realm of economic thought nothing is more plain, and on no subject is there more universal agreement, than that coöperation offers one, if not the only, solution to the present high cost of food distribution; and nothing seems today to be more necessary to successful farming in this country than some sort of coöperative effort.

In spite of these admitted facts, we are met at the start with an ingrained idea of individualism and by the remarkable financial successes of a few individuals working alone and for themselves; but no one, taking a larger view of the present conditions, can fail to see that no great advance in farming is possible as a business, or in food distribution as a part of that business, unless, as producers and consumers, we try to adopt certain reforms in our methods; unless we will learn, as have other men in other businesses, that we can secure greater advantages for ourselves and for others by combination, by coöperation.

It is safe to venture the assertion that many of our efforts in farming for years past have been indirect. We have been trying to lift farming; and, through the medium of increasing our farm yields, rather than by reducing our cost of crop or stock production and distribution.

The answer offered by science — laboratory science — to a pressing problem, was larger crops; and this answer was accepted with little analysis by us all. The rapidly advancing prices of our products, due to many other outside economic forces, deluded many of us as to the correctness of the answer, and it deludes many of us yet. For those who possessed capital and gray matter in sufficient quantities to absorb this scientific solution it seemed all sufficient. We were satisfied; many of us are still in this enviable frame of mind, and to these this bureau and its work seems useless.

All was going along well when someone discovered that we, as producers, were getting only thirty-five cents of the dollar expended for our produce. Then it mattered little how satisfied or how prosperous we were with increasing prices and increasing crop yields; we had remained human enough to ask for more of that dollar.

We are asking for more of it now, and the consumers have joined in the chorus. We are asking a new answer of science, not one which means more work or more money from us, but one which will bring us a larger part of the money already in sight on the counters of the world, with little extra labor except that of applying a few simple rules to our business rules that are working with wonderful success in the other activities of men.

We did not recognize that as producers we were responsible for the distribution of our produce to the consumer; and as consumers we did not feel we were responsible for that distribution in so far as it was done economically and at fair prices. We were, and are, unorganized in a business sense. Certain agencies took and kept part of our business, part of that dollar, and these agencies which take and keep look with some disfavor on any awakening of the producers' and consumers' business sense. They say coöperation is socialistic; that it weakens individual incentive; that it deprives us of freedom of action; but freedom and independence are strong terms and are empty terms without opportunity.

We may be free to walk to San Francisco, but most of us prefer to sacrifice some of our independence and freedom by using a railroad, which in its best way only tries to meet the combined desire of many men to go West; and we prefer the necessary money, or opportunity, with which to ride rather than the abstract freedom or independence to walk. All the lessons of our twentieth century life are to the point of showing the necessity of organization; they show in a thousand occupations what economies combination has effected.

And these combinations have taken many of these occupations from the fireside where they were born, until the business of the farm remained almost the only refuge for the inefficient, uneconomical and unorganized. The very place where organization and coöperation were most needed is filled with a very independent man of straw, who, with the best grace in the world, tries to lift himself by his bootstraps; who tries to double his crops and his labor that some organized band may haul the crops to market, may manufacture, may distribute and may sell them.

This condition is obvious. To remedy it, or to attempt to find a remedy, this society coöperated with others that the Bureau of

Coöperation might be established. Then a three-thousand-dollar man was given a chance to go right out and fix up this little billion-dollar business. And he must get right at the business and show results, for fear that he lose his official head, notwithstanding the lack of support either financial or moral.

The bureau receives letters constantly which say very plainly, "Well, what have you done?" and, "Why don't you do something?" Consumers ask us where to buy everything from apples to watermelons, and producers ask us where to sell everything from veal to alfalfa. But they, almost without exception, asked us as individuals, with very little evidence in their letters, at least, that they wished to coöperate with anyone.

They seem to feel something is wrong, and they turn to this bureau for relief. In short, there were a lot of coöperators running around loose who did not know, or realize, that they must get together; that they must organize; that they must coöperate with some one near at hand and not attempt to put their business in the hands of this bureau and expect quick action. One man, on the twelfth of December, wrote a very impatient letter that he must have a complete list of the coöperative associations at once, so he could reach them before the holidays. He did not say whether he wanted the associations of buyers or sellers, nor did he seem to see that many of those organizations do not want to do business with individuals.

The bureau has been able to bring some buyers and sellers together, but in no sense can that be called coöperation on the part of either, because the interests involved can not operate together. They may effect a community of interest and be mutually helpful, but the seller and the buyer will always pull apart. This does not mean that several men may not organize and act as both buyers and sellers; this is exactly what will be done by coöperative companies. But when such act as sellers they will have a very different way with them from the manner they will employ to other sellers when they turn buyers.

At the present time it appears that the work of any new co-operative company should be restricted to serving one class of members whose interests are identical, in so far as they may be combined as buyers or sellers, or both. It is possible, moreover,



FIG. 232.—MARC W. COLE, SUPERINTENDENT OF COÖPERATION, STATE
DEPARTMENT OF AGRICULTURE.

to more easily form these combinations among producers for the purpose of buying ordinary farm supplies than it would be to undertake the selling of the produce from the members' farms. By doing this form of business at the outset valuable business lessons would be learned, and it would be but a short time before the selling could be undertaken with a loyal membership that would have learned the profits and the uses of coöperative effort.

In the actual work of the bureau, section 34 of chapter 454, relating to the earnings of coöperative associations, is somewhat of a hindrance to the incorporation of new companies. It seems too strong a medicine for infant industries. The first two sentences of this section, limiting the dividends to 6 per cent. and setting aside 10 per cent. of the net earnings for a reserve fund, are all right; but the mandatory tone of the remainder of the section does not seem exactly suited to the people of this state who are considering incorporation.

It does not seem to be necessary to so far instruct prospective incorporators as is attempted by this section. The individual member, or director, of a new coöperative society may be safely intrusted with the distribution of the profits over and above the 6 per cent. dividend and the 10 per cent. reserve fund, and they would certainly be able to direct this distribution better than by following any set rule which might be laid down. The 5 per cent. to be set aside for education is, to say the least, inadvisable, because if there are any profits over and above those above mentioned, they in themselves will be the greatest educational feature of coöperation.

The wording of this section of the law is ambiguous, moreover, where it relates to the distribution of the remainder of the net profits. Some question has arisen as to whether a coöperative company would not be obliged to pay part of its dividends to a feed company, for instance, from whom it purchased goods to the amount of \$100 or over. Obviously this was not the intent of the law, but it is one of the questions which have arisen in its actual operation.

All the questions of profit distribution after the limited dividend and reserve are set aside should merely point the way, and be written with the word "may" instead of "shall," if it is

thought necessary to offer these suggestions at all in the law. No doubt this section of the law could be well amended, and it seems to me that this might be done by repeating the last paragraph of this section as follows: "The net earnings of such corporations may be distributed, after the stock dividend and reserve fund percentage is paid, in such a manner and at such times as the directors shall provide, but such distribution shall be made once in twelve months."

Section 31 of this law, concerning the written vote of stockholders, may be changed also to the advantage of the new companies. That the written vote of an absent stockholder signed by him could be received and counted, but no member be allowed to cast more than two such proxy votes at any one meeting, would appear to be restriction enough on this phase of the actual business of a company.

Under this law as it is, however, the formation of such companies is very simple, and contrary to the general belief, very little capital is required to start a buying company among producers. It is quite difficult, however, to combine the consumers in a buying company because here some central trading place seems necessary, competition from every side is hard to meet, and capital is as yet harder to find. Here the necessity for some central bureau is clear. It is able to have a general advisory superintendence over the easy beginning in the one case, where mistakes in organization are quite disastrous, and in the other case the bureau can help in the selection of the proper business place and method without being influenced by the personal factor, as would the actual members, besides being able to acquaint such organizations with larger fields of supply.

The need of a bureau is quite universally recognized where the coöperative movement is well established. In this state, however, it is met with questions on this order, "If coöperation is so highly desirable, why a bureau? Why the expense? Why try to cram coöperation down the producers' and consumers' throats?" These questions could all be answered in the same manner that the state answered the questions, "How long will it take our agricultural experts to make spraying of fruit trees a universal custom?" or "Why is it necessary to spend money to preach the doctrine of lime or alfalfa?"

Our American producer and consumer have been so long outside the commercial circle that it will take patient instruction to bring them inside. Our habits of thought and business are very, very old and habit, suspicion and indifference may only be gradually overcome. Propaganda is more necessary to coöperation than to spraying and if our coöperative idea is economically sound as we believe it we must advertise it; we must preach it and practice it long and thoroughly and our experience in this state in other agricultural extension work is a complete answer to the need of a bureau. If we can give to the movement the attention and the study it deserves we may reasonably expect that American coöperation, or more definitely New York State coöperation, will reach even deeper into our lives and carry its benefits further than it does abroad.

Of course the bureau's usefulness will grow as does the number of coöperative societies; ultimately it will be able to act as the central clearing house to the various groups within and without the state. Until the time when coöperation becomes quite a general movement no bureau can reach its greatest usefulness and its principal work must be missionary in character. Until that time it must spread the gospel of coöperation and it must secure converts to the cause. The bureau can do this, and it is doing it, but no bureau and no law can furnish the converts, the coöperators. Nor can it supply the spirit of loyalty which is absolutely necessary to successful coöperation, or to any successful business.

The bureau must almost literally stand in the coöperative pond and by repeated assertion that the water is fine and not a bit deep or dirty, invite swimmers. It may have to push the producers and consumers in and say sink or swim, but it can not do this and be the swimmer.

In this society there are many members who know undoubtedly more about coöperation in the abstract, or as it is practically abroad, than does any bureau; but very few of these same members will take off their clothes of individualism and jump into the water. They are the coöperators who want the other fellow to do all the coöperating. It is the bureau's job to make the desire to jump into coöperation irresistible; but they must get a little closer to the bureau, and they must afford us a chance to grasp their individual or local problem.

To sum up the case, we have the necessary laws, we have the bureau established in the Department of Agriculture where it is free to operate in any way that seems wisest, and where it is given every encouragement and assistance it may need. The mill machinery is ready, the power is ready, it is up to the producer and the consumer to bring us the grist.

MR. WADSWORTH: In the program of this morning the shortness of time made it necessary to drop temporarily one of the subjects, so that this afternoon we are going to hear from Mr. B. G. Parker on the subject of "A Practical Savings and Loan Association."

A PRACTICAL SAVINGS AND LOAN ASSOCIATION

B. G. PARKER

The subject assigned, "A Practical Savings and Loan Association" naturally confines my talk to the Gouverneur Savings and Loan Association with which I have been connected since its organization, twenty-two years ago. The points which I shall endeavor to bring out are from personal experience, and I must ask you to bear with me if it savors somewhat of "I."

About a dozen men met and resolved to organize a Savings and Loan Association. We started with promises to pay in a fixed amount each week and had less than a \$1,000 when we made our first loan. Within twenty years from that date we had over one million dollars of the peoples' money and averaged to receive over \$1,000 a day and are still growing and spreading the gospel of thrift. There is no demand for money in our section we can not finance — from a small loan on a dwelling to an entire issue of town or county bonds. What a magnificent exhibition of thrift and prosperity for a village of less than 5,000. What an indisputable evidence of public confidence in the coöperative savings and loan association.

The savings and loan association is the only financial institution in existence today that is truly coöperative. Most other financial institutions, some of them claiming to be mutual in their relations to the people, are paying their officers large salaries; but this benevolence scheme is owned and controlled by the people whom they serve, making their profits from the shareholders and

dividing them among the same shareholders. The business is conducted on a very narrow margin by men who have the interest of the town at heart and receive no compensation for their services, and is entirely free from the purely selfish commercial spirit dominating those in control of most of our commercial banks and trust companies. They are, as a rule, conducting those institutions to pay large dividends to their stockholders, and just as little as possible to their depositors who furnish the money for them to do business with. The spirit of our institution is to encourage thrift and property owning, to pay our saving members the largest possible returns on their money and at the same time make loans to farmers and home seekers at the very lowest rate of interest, thereby being a benefit to both classes.

Under our articles of association we are issuing three kinds of stock or shares: Installment, which might be termed a building and loan feature; prepaid certificates, which are no different in effect than a certificate of deposit issued by a state or national bank, and savings stock which is no different than a saving bank pass-book.

To the installment stock goes the larger profits of the institution. We believe that the member who incurs the obligation to pay regularly and for a period of years and makes an installment loan should have the first consideration, and we are crediting 7 per cent. on installment stock which amount compares favorably with the dividends paid by other associations in the state. We are paying 4 per cent. on our savings and prepaid stock.

There is nothing in the workings of our institution that appeals to the man who desires to be prematurely opulent. The great desire to accumulate a fortune quickly by a short cut makes the building and loan association too slow a method for the ordinary man of today, but it has the advantage of being rooted in fertile soil and under proper cultivation is sure of normal growth and a reasonable harvest. Under such conditions it recommends itself to the conservative individual who does not expect to make a fortune without earning it.

The practical association meets the requirements of all classes and conditions of the community in which it is located. It is an agency in making the surplus funds of one portion of the people

available to meet the wants of another portion. If the people were obliged to wait until they had saved enough money to build a home or buy a farm it is evident that there would be more renters. The time was when it was necessary for a borrower to wait until he could find a man who had just that amount of money on hand, to be loaned out on just such property and on such terms as could be agreed on. In our section of the state business comes largely from the farmer, and it is to his wants that we have catered in a large degree. On the whole the farmer prospers and lays something aside each year. He is looking for a place to invest his money where it will yield him a moderate interest and where it will be available for the purchase of a farm or the making of some other investment when the opportunity occurs. He can not come to town every Saturday or even every month to make regular payments in a savings and loan association as the man in the village or city. If he is a borrower he can not pay off his mortgage as a man on a salary can. In the spring he puts in his crops and it is not until fall that he gets returns. The dairyman markets his milk mostly in the summer months and his checks come along in that season. If he is occupying a rented farm, November first is the time for settlement and a general moving day for farm tenants. It is then that he often receives the greatest portion of his year's income, the money which naturally finds its way into the savings institution.

Under these circumstances you can readily see how the plan of weekly or monthly payments would not meet his requirements, and until we provided something different this money went into the local banks where it earned little or no interest. If the time came when he wished to withdraw his savings and make a loan to buy a farm the institutions which had been receiving his money could not lend it, as the nature of their business precluded farm mortgages. It seemed to us that this was not as it should be; that the farmer, like the business man, should be able to turn to some institution that could finance his affairs, that after depositing his money with them, to loan, he in return should be accommodated along this line if he desired. To meet this situation we have worked out a plan that enables us to loan at 5 per cent. per annum up to a reasonable percentage of the property, all the money

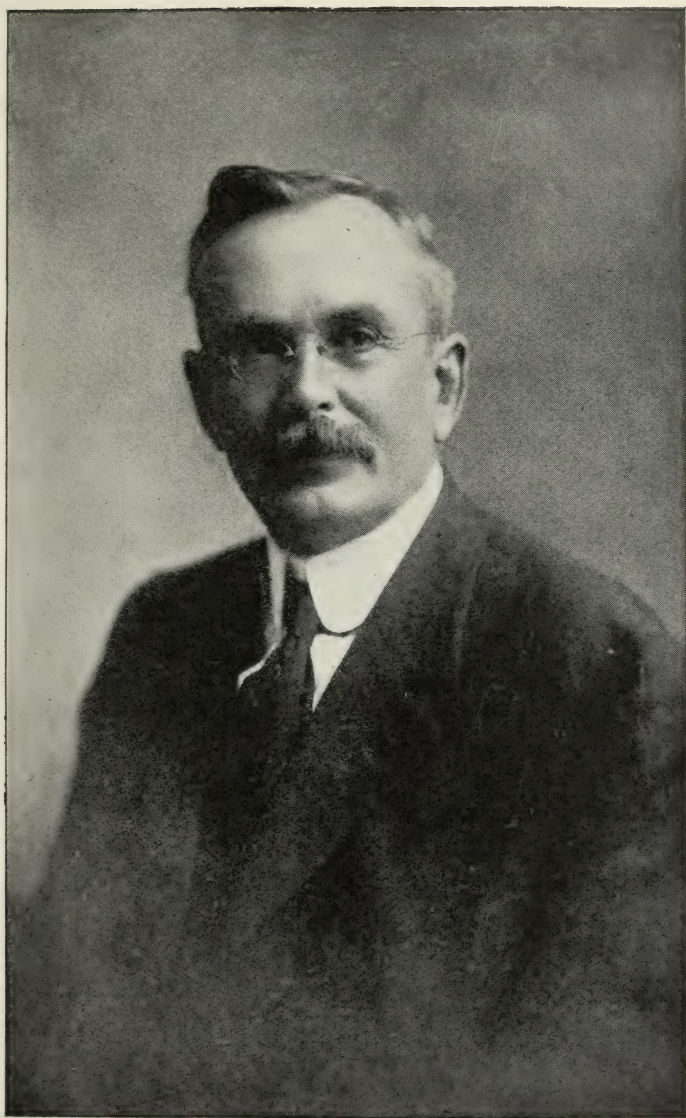


FIG. 233.— B. G. PARKER, PRESIDENT OF GOUVERNEUR BUILDING
AND LOAN ASSOCIATION.

that there is any demand for in our section. We have never been obliged to turn down a loan for lack of funds. Our difficulty has been to find a place to loan our money.

Our association has been a great help to many ambitious young farmers in their struggle to have a farm they can call their own. It has been the means of stimulating the man to do his best, to attend just such meetings as are now being held throughout the state under the auspices of the New York State Agricultural Department. It is often that a farmer living on a rented place has accumulated farm tools and saved some money, he may have been depositing money in our association for years and he naturally comes to us for assistance at this time. He makes a purchase and pays 30 to 40 per cent. down and comes to us for the balance of the money. We loan it and take a mortgage on his farm for three years, the terms of which provide for the payment of interest at the rate of $5\frac{1}{2}$ per cent. for the first year and 5 per cent. thereafter payable semi-annually on the first days of June and December. We also provide for the payments on principal at such times interest is due. At the end of the three years we might demand payment if, for any reason, we feel insecure. We have never yet been obliged to do so and many of the mortgages run indefinitely. In some instances when the farmer has only a small percentage of money to pay down we take the first mortgage for a term of years and the man making the sale will take a second mortgage providing for small payments from time to time.

One of the advantages of a practical saving and loan association to a farming community is that the officers of the institution become acquainted with its members; they not only know the value of the property upon which applications for loans are made, but they usually have a personal acquaintance with the proposed borrower. He may have taken out shares in the association and accumulated enough to make his first payment on a farm, and it is worth something to us and an advantage to him to feel that we are dealing with a thrifty, saving person. We would feel secure in financing a deal for such a man on a very narrow margin and thus enable him to secure a home which he otherwise would be unable to do. It is the coming into contact with the people, knowing their habits of thrift and industry which recom-

mends them to us in such cases that might not be taken into account by some outsider having an application for a loan. We all know, and some of us have learned from experience in the management of affairs, that the man as well as the property is a large factor in the consideration of a loan.

If every savings and loan association located in farming sections would adopt the methods that we employ and after having adopted them advertise and make themselves known, I see no reason why they can not, to a great extent, solve the question of rural credits. The great trouble seems to be there is no incentive, no prospects of financial gain to the man who spends his time promoting this scheme for the welfare of the community.

We know that this system combines all these elements of coöperation and saving, yet the farming community is not reaping the profit it should. A proper education is necessary to induce men to participate in it. You must show the farmer where his interest lies in this direction.

"What should a farmer do with his surplus?" would be an interesting talk in a farmers' institute, very appropriate and right to the point, but it would be very unpopular with a certain class in every community. In fact, I think that the state department would soon have complaints from those interested in other financial institutions and pressure would be brought to eliminate that special feature from the program. Any effort to establish a coöperative savings and loan association among the farmers thereby, to a large degree, solving the question of rural credits will meet with opposition from well-known sources as did President Wilson's plan to organize regional banks.

There is one great satisfaction that comes to every officer of a savings and loan association and that is the thought that the farm mortgages included in the assets of the institution are the best and most desirable securities that can be had. It makes no difference what rate of interest they are drawing, the banking department never asks you to charge off anything for depreciation; the securities are always worth one hundred cents on a dollar. Look at the market condition of our railroad bonds that are legal investments for savings banks and trust funds. The bonds will all be paid when due, one hundred cents on the dollar, and all

earning just as much for the institution holding them as they did when they were purchased ten or twenty years ago, but you can buy them in the open market for from ten to twenty points less than you paid for the bunch ten years ago. The farm mortgage is worth just as much as when you purchased it, it is immune from the workings of commissions, high finance, trust legislation and receiverships. No law, as yet, fixes the price of the farmer's milk, his hay or his grain, and then compels him to have a "full crew" at a fixed scale of wage at milking time or at the harvest. The fire warden does not come around and compel him to put fire escapes on his hen-house or swing the door of his hog-pen the other way. Once established in business he knows about what his income will be and figures accordingly and seldom if ever defaults in his interest. This is where he is better fixed than the man who unfortunately has his money in a business for commissions to run. As long as he is honest and clean the "system" can not get him or his; he controls his own property and that factor goes a long way toward making his credit good and his security the best in the world.

MR. WADSWORTH: It is suggested that perhaps some members of the society would care to take part in a discussion on this topic or to ask questions on the subject. If so, any questions or discussion are in order. Or, if it seems wiser, we may postpone such questions and discussions until the program is finished.

There seeming to be no desire to enter into a discussion at the present time, I will now call upon Mr. R. B. Van Cortlandt of New York, to address us upon "What is Agricultural Credit?"

WHAT IS AGRICULTURAL CREDIT?

R. B. VAN CORTLANDT

I have often been asked "What is agricultural credit — what is it trying to do?"

The subject in all its ramifications is a vast one and many hours might be consumed in its consideration. What I am going to try to do is to give you as briefly and succinctly as possible some of the fundamental principles and aims of the movement.

I think it may be said that there are three leading features which are not necessarily related but which a successful realization of the purposes sought must embody.

First.—It is sought to place agriculture on a better business basis.

Second.—It is sought to mobilize land and land mortgages.

Third.—It is sought to form institutions where the primary interest considered will be that of the borrower and not that of the lender.

Let me enlarge briefly on each of these points.

Heretofore in America farmers have made little attempt to be business men. Their work is hard and at the end of the day they have small desire to pore over accounts, and so if at the close of the year their unpaid bills are not too large and their stock on hand up to the average with the farm and buildings in fair shape, they are pretty well satisfied. In the early development of our country this state of affairs did very well. We had vast areas of fertile land which were cheap and did not require much cultivation to yield good returns, labor was fairly plentiful and wages comparatively low. That happy state of affairs has gone never to return.

The best land is now practically all occupied. Its virgin richness is gradually disappearing so that it can no longer produce as heavily under similar conditions. On the other hand our population has been increasing rapidly and our standard of living has been rising, multiplying the demand for good food even more rapidly than the increase of population.

One of our great sources of wealth has been, as we all know, furnishing other nations with food supplies out of our surplus. This fortunate position is now being gradually weakened and if not checked one of our chief elements of prosperity will in time disappear.

The remedy, however, lies in our own hands. Science has taught us the elements of which land fertility is composed, and we know how to counteract and repair the exhaustion resulting from the raising of crops. We know that fertilizers, proper cultivation and rotation not only render the land practically exhaustless but even increase its yield.

“That is all very well,” says the farmer, “but it costs a lot of money and I haven’t got it and don’t know where to get it.” And so we are brought face to face with a situation with which so-called agricultural or rural credit seeks to deal in one of its phases, carrying with it not only better credit facilities, but also the whole question of country life and its betterment, so that the boys and girls on the farm as they grow up will be content to marry and live in the country, furnishing an adequate food supply to the whole population and plenty of sturdy youngsters to the state.

The existing banking system is designed for industry and commerce. It seeks as much as possible liquid assets that can be turned into cash at short notice. For merchants, three months credit enables them to do their business satisfactorily, with perhaps partial renewals, because the turnover of their goods is normally completed within such a period. The processes of nature, however, with which agriculture is concerned, are slower. From the application of fertilizer to the harvesting and sale of the crop often a year elapses. In raising animals two or three years are required before a full return can be secured and the loan discharged through the natural working out of the operation. The benefit derived from a piece of machinery is only gradual and requires time to reimburse the farmer for the necessary expenditure. And so the conclusion has gradually forced itself on those who have made a study of this subject that, if agriculture is to be put on a proper business basis, if the full development of which it is capable is to be reached, it can only be through the organization of lending institutions especially adapted to its needs.

The second aim I stated to be the mobilization of land and land mortgages.

Our present system of borrowing on land is by mortgages running generally from three to five years, the entire principal coming due at one time. This is expensive, involving nearly always renewals, and dangerous from the possibility of the mortgage falling due at a time of restricted credit so that it can not be renewed,—this danger being greater for the farmer than for the owner of improved city property. On the continent of Europe this business is handled by so-called land mortgage banks, or rather associations. These associations are formed along varying

lines, some being formed with stock like the great French institution *Credit Foncier*, some having no stock like the German *Landschaften*, some being guaranteed by a state or province as in Austria, and the principal one in Hungary combining ingeniously various features peculiar to itself. All these institutions, however, are formed along certain general fundamental lines as follows:

The mortgages which are granted are pledged for the security of bonds which the institution issues and sells in the general market. These bonds have no fixed maturity, but can be retired at par or some small premium at any time. When the borrower mortgages his land to the bank he agrees to pay a certain fixed sum per annum, payable semi-annually. This fixed amount is called the "annuity" and is composed of the annual interest plus an amount, generally $\frac{1}{2}$ per cent. towards the reduction of the principal of the debt, and known as "amortization," and an additional amount, about $\frac{1}{4}$ per cent., towards the expenses of the bank. The borrower, therefore, begins at once to extinguish the principal of the debt, and as each year the principal decreases the interest of course decreases also, and the annuity being fixed the proportion of it applicable towards the extinction of the mortgage increases and so it happens that, beginning with a payment of $\frac{1}{2}$ per cent. towards principal, the mortgage bearing 4 per cent. to $4\frac{1}{2}$ per cent. which are the general rates, the entire debt is extinguished in between fifty and sixty years.

All these banks are under close state supervision and every precaution is taken to ensure proper administration and valuations of land. They are usually accorded certain privileges such as exemption from some forms of taxation, often, also, the right of immediately entering into possession, called sequestration, and quick foreclosure in case of default in the annuity. In addition, the bonds they issue are generally legal for trust funds.

The result is that these bonds sell freely and on almost as good a basis as government securities. The bond market, as you know, has been poor all over the world lately, but an annual payment of $5\frac{1}{4}$ per cent. would even now cover every item and extinguish the debt in about sixty years.

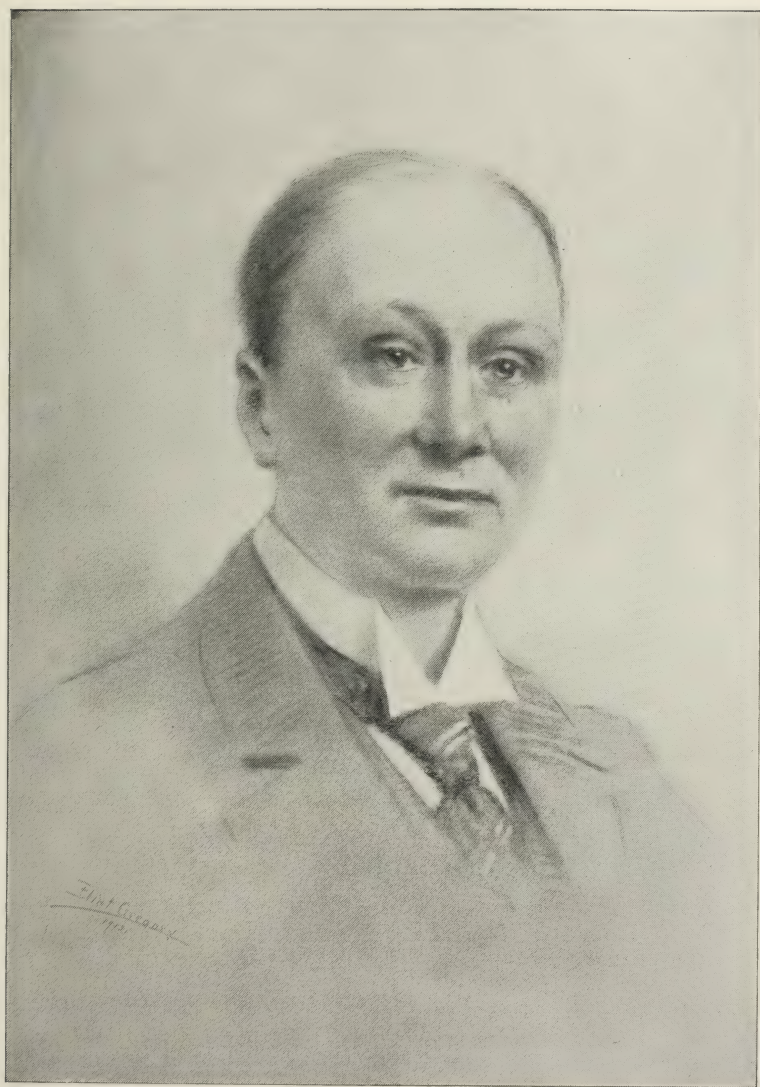


FIG. 234.—R. B. VAN CORTLAND, NEW YORK CITY.

The borrower has the right at any time to pay off the mortgage, a small penalty being generally exacted, but the lending institution can not require payment from the mortgagor, thus guarding against any higher rate of interest being exacted during the life of the loan; whereas, should interest rates fall, the borrower can anticipate the payment of the mortgage and secure the benefit of the lower rate of interest.

If payment of a mortgage is anticipated, or when the semi-annual payments are received by the bank, it enters the market and buys, or retires a corresponding amount of its bonds so that its outstanding bonds never exceed in the aggregate the total of the mortgages it holds against them. This also has the additional advantage which bankers will appreciate of making a constant market for the bonds and there is no necessity of sinking funds for special mortgages, as they are under a general pledge. These banks do not look to deposits to provide funds for lending. In some cases they are forbidden to receive them, in others they are restricted to a proportion of their capital. In this way they do not compete with ordinary commercial banks.

The mortgaging of land is known as long-term credit and it may be handled as stated above by joint-stock institutions or by associations of borrowers, the nature of the business being such that both forms of institutions have advantages and defects which may make the one form more adaptable to one community and the other form more adaptable to another, but in institutions furnishing the credit required by farmers for working capital such as the purchase of seeds, fertilizer, payment for labor, etc., which is known as short-term credit, the third aim of which I spoke, viz., the forming of institutions in which the borrower should be financially considered rather than the lender, assumes fundamental importance.

On the continent of Europe a solution is found in the organization of banks by the application of so-called coöperative principles. The purpose is to provide organizations where the borrower receives consideration rather than the lender, and also to keep the money of any body of individuals for the use of that body, it being a fact that under the present system a great deal of money belonging to farmers finds its way into Wall street and into securities.

In our present banking system a bank is organized by inviting people with money to subscribe to the stock and these stockholders have the sole voice in electing the directors and managers of the bank and in disposing of the deposits that may be secured. This is the practice because it is felt that if the money is provided there will be little difficulty in finding a profitable use for it. In business, however, there must always be two parties to the transaction, the buyer and the seller; or, in the case of loans, the lender and borrower. At present the lenders are organized, whereas the borrower stands alone. In a joint-stock bank the primary consideration is that of the stockholders. The loans taken will naturally be not only the best that, in the opinion of the directors, may be offered, but they will also be the most profitable to the bank, and the borrower has no alternative but to accept or decline the loan.

The initial capital is secured by entrance fees and subscription to shares where the principle of limited liability is adopted; or, if there are no shares, resort must be had to the principle of unlimited liability — the equal and unlimited liability of all members who join the bank for every obligation the bank may contract — which is prevalent particularly in Germany because experience has shown that there, at any rate, it involves practically no risk. In the United States it would hardly be accepted, certainly not generally.

After the coöperative bank is formed the problem of securing funds to loan is, of course, the chief one, but, as one of the principles followed is to limit dividends on the stock to 4 or 5 per cent., a reserve can be gradually accumulated and deposits come in as it is gradually seen that the bank is doing a safe business, all speculative business being avoided.

Other important features are that every stockholders should have but one vote no matter how many shares he owns, although it is provided that no one person shall own more than a certain number of shares, generally 10 per cent, and another absolutely essential feature, where the bank is formed with unlimited liability, is that the area in which it operates should be restricted so that the members can all know and watch each other. The loans must be for a productive purpose and not, for instance, for living expenses,

so that when the purpose sought has had time to accomplish the results aimed at, varying in agriculture from six months to two or three years (as would be the case in buying a cow and raising and selling the heifer), the borrower will receive funds to liquidate the loan. Loans are only granted to members of the bank, although deposits are accepted from outsiders. This has the double effect of making a borrower personally interested in repaying his loan, and secondly, as undesirable men would not succeed in being elected to membership, the bank is protected in the character of those it is loaning to. You all remember what importance the great banker, Mr. Morgan, attached to the character of the man who sought to borrow from him.

I could speak to you of other features of these coöperative banks, such as the encouragement to thrift which they exercise and the beneficial effects they have had on the character of a community, but in this brief address I am confining myself to the business side.

The chief difficulty is that of securing funds sufficient to supply the needs of borrowers, and so, after a time, the advisability of forming a central bank for a group of local banks, was clearly seen. The central bank acts as a sort of clearing house for the funds of the local banks, some of which have a surplus of deposits above the loan requirements of their neighborhood, although as a rule it may be said to be the other way around. But in addition the central bank, being an institution with very considerable resources, is in a position to do business with the large commercial banks and with the government banks of issue which exist practically in all European countries. That this whole system of coöperative banks is of no mean proportions is at once shown by the fact that in Germany, for instance, their deposits amount to nearly \$500,000,000, and the turnover of thirty-six out of forty central banks in 1910 was about \$2,000,000,000.

It is not hard to see many obstacles to the successful working out in this country of institutions formed along similar lines. One of the great requirements being that expenses must be kept down to the lowest point in order that they can loan cheaply, it is essential that they secure much of their service gratuitously.

Nevertheless the benefits to agriculture and the results obtained for the betterment of rural life in general have been undeniable and far-reaching.

The prospect certainly is not alluring to anyone considering joining the movement — hard work, no pay, probably little thanks. I have lived now for many years and, as happens to us all, some of my illusions have been shattered, yet I am still optimistic enough to believe that competent men will offer themselves to guide the movement to success simply because it is worth while.

MR. WADSWORTH: The society has a standing Committee on Coöperation, and we will now listen to a report from that committee, delivered by the Chairman, Mr. C. R. White, of Ionia.

REPORT OF COMMITTEE ON COÖPERATION

C. R. WHITE

Your committee feels that it is unnecessary to call further attention to the need of a more economic system for distributing the products of the farm. There has been so much evidence presented that by common consent it is admitted that 65 per cent of the consumer's dollar is paid for delivering the product of the farm to the consumer.

Further study of the statistical abstract of the Department of Agriculture lends stronger proof that the avenues for distribution of farm products are inflexible and wholly inadequate, and with our markets open to the producers of the world, the farmers of America are confronted with the probability that they will, in the shortest years of production, be compelled to accept prices which heretofore they have been obliged to accept in years of excessive production; for if our channels of distribution are unable to expand to meet the needs of increased production at home, how can it accommodate itself to the large amount from the shipments of the entire world.

In the past, years of short production, when not only the income of the average individual farmer has been greatest, but the total received for the entire production of the farms of the country has been greatest, have helped to make a profitable average with the years when the heavier production so lowered the price that

not only the individual farmer suffered but the total income of the agricultural interests was less. As further proof that the large producing years are not only a great expense to the producer but are of little if any benefit to the consumer, we would quote the following extract from the United States Department of Agriculture, Farmers' Bulletin No. 570, taken from the report of Leon N. Esterbrook, Chief, Bureau of Statistics (Agricultural Forecasts):

“However desirable increased production on farms may appear from the consumer's standpoint, it does not follow that such increased production would result in any increase in the cash income per farm or per capita of farm population, or that prices paid by consumers would be any lower. The estimated total farm production in 1913 is less than in 1912, yet the estimated gross and net cash returns to the farmers are greater than in 1912. Had the total production in 1913 equaled or exceeded the 1912 production, it seems probable that the cash income per farm would not have been greater and might have been less than in 1912; but it is extremely doubtful whether the cost to consumer would have been any less, because retail prices are promptly raised on a prospect of under-production, but are very slow to decline if there is over-production. The long line of distributors and middlemen between the farmer and consumer are in a position to take advantage of the market, and to a certain extent control the market, in both directions, because they are better organized to keep informed of the crop and market conditions, and to act more promptly than either farmers or consumers, who are not organized and as individuals are helpless. The high prices paid by consumers ranging from 5 to nearly 500 per cent., in some cases, more than the farmer receives, indicate that there is plenty of room for lowering the cost of farm products to consumers and at the same time largely increase the cash income per farm without increasing the farm production. This condition is undoubtedly a marketing problem, which will have to be solved by better organization of farmers and improved methods of marketing. When, as the result of such organization and improved methods, the prices of farm products can be maintained at a higher level without increasing the cost to consumers, farmers will be justified in increasing the output of their

farms with a fair prospect of realizing a reasonable profit on their investment of time, labor and money, which in the aggregate is enormous."

Quoting further from the same bulletin, table 3, page 8, taking two of the principal crops, corn and potatoes, we find that in the year 1913, a year of extremely short corn crop, the average yield was 23 1/10 bushels while the average price was 69 1/10 cents, making the income per acre \$15.96. In the year 1912 the average yield was 29 2/10, which sold at 48 7/10, making the income \$14.32, or a difference per acre income in favor of the short year of \$1.65. The total crop of 1913 had 2,446,988,000 bushels, which brought \$1,692,092,000, while the crop of 1912 was 3,124,746,000 bushels, valued at \$1,520,450,000, showing a loss of \$161,640,000, together with the labor of harvesting and marketing and also the loss of the plant food.

In reference to potatoes, in the year 1911 the average yield was 80 9/10 bushels per acre, selling at an average price of 79 9/10 cents per bushel, making an acre income of \$64.63. In 1913 the yield was 90 4/10 bushels, selling at 68 4/10 cents, making an acre income of \$62.10 or \$2.53 less per acre income than in 1911. The crop of 1912 gave an average yield of 113 4/10 bushels, selling at 50 5/10 cents or \$57.26 per acre, comparing which with the crop of 1911, where there is a difference of 33 bushels per acre, we find that the acre income is \$7.38 in favor of the smaller crop. Comparing the totals we find the crop of 1912 to be 420,647,000 bushels, valued at \$212,550,000, and the crop of 1911, 292,737,000 bushels, valued at \$233,778,000, showing that the 1911 crop, which was short 128,110,000 bushels of the crop of 1912, brought \$21,228,000 more.

Where, then, is the farmer to receive his profit, if in the years of short production, which were the only profitable years, the shortage is to be supplemented by importations which will swell the total products offered to our markets equal to the years of overproduction at home.

But is there ever an overproduction? Not so long as there are hungry stomachs to be fed. There has rarely been a production of any crop in the past which would have allowed a surplus after supplying the needs of the people. There is no likelihood of such a condition occurring in the future.

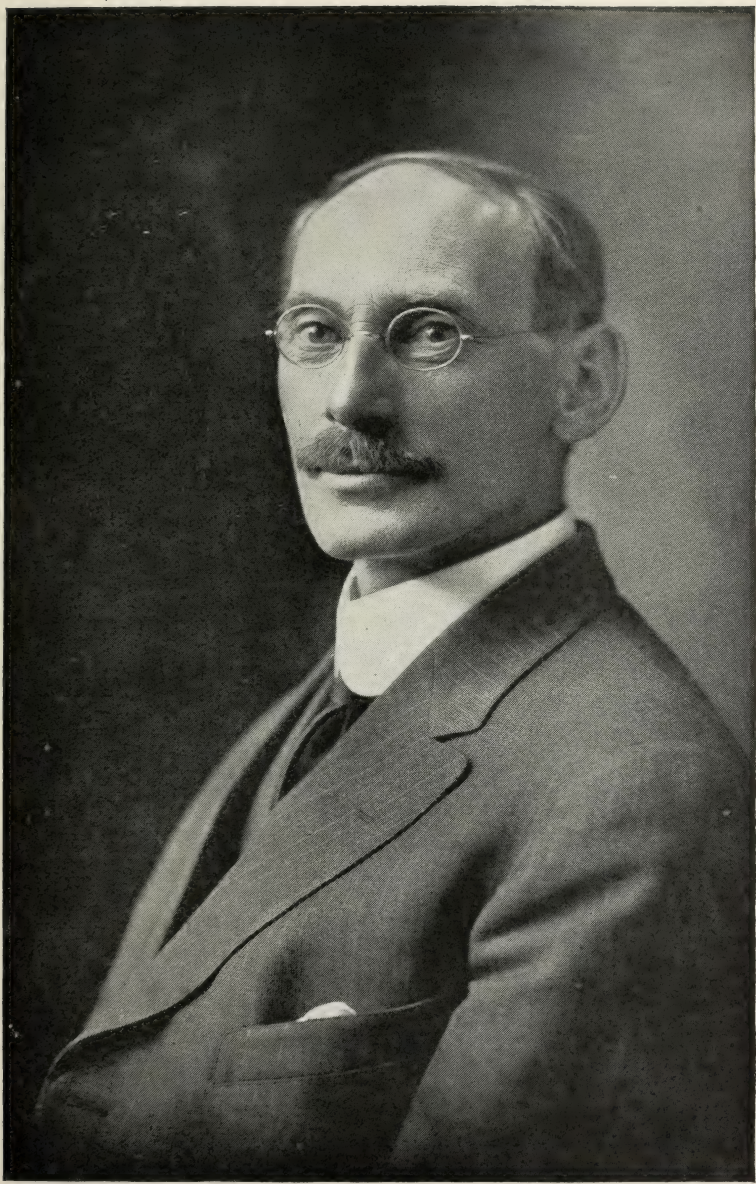


FIG. 235.— C. R. WHITE, CHAIRMAN OF COMMITTEE ON COÖPERATION.

Your committee takes the ground that since all the people are consumers and many are producers, they should, through their governmental power, take steps to remove any obstruction which stands in the way of the freest possible distribution of the food products of the country. We are satisfied that it is possible through such governmental agencies working in coöperation with organizations of producers and consumers to wholly relieve the present distressing conditions; but before such results can be attained institutions of enormous magnitude must be put into operation. This can not be accomplished by the organization of gigantic concerns but must be the outgrowth from the federation of many small, well organized and systematized units whose organization and operation shall have been based upon the principles which have been evolved from the successes and failures of similar institutions throughout the world.

Your committee feels that the time for creating sentiment has passed. The people as a whole are thoroughly alive to the conditions and are convinced that there is a need for the proposed agencies of relief. We therefore recommend that the power and influence of the New York State Agricultural Society be exerted towards bringing about a concerted systematized effort on the part of the several agricultural institutions, departments and societies to work together for the support and improvement of such agencies as we already have and the creation of others where advisable, whose duty it shall be to enter into the active work of organizing farmers' coöperative business associations and to assist such associations when formed to direct their efforts along lines which shall be safe and effective. We would especially call your attention to the farm bureaus as an agency which can do very effective work. We would not confine the work of organization to the creation of selling and buying associations but would organize local breeders' milk testing and other associations for the purpose of reducing the cost of production and the improvement of farm conditions, as well to aid consumers in the organization of institutions where they may be enabled to obtain supplies more direct.

MR. WADSWORTH: We will now have the pleasure of listening to Mr. Seth Bush of Morton, N. Y., on the subject of "What the Eastern Fruit and Produce Exchange Has Done."

WHAT THE EASTERN FRUIT AND PRODUCE EXCHANGE HAS DONE

SETH J. T. BUSH

Last summer a few growers of Western New York, recognizing the advantages and possibilities of coöperation in the distribution and sale of their products, decided to form an organization of their own, through which they might secure proper facilities for the handling of their fruits and vegetables. Our proposition covers the purchase of all necessary supplies, such as fertilizers, spraying materials, fruit packages, etc., as well as the sale and distribution of the products of our farms, and the proper prompt investigation and collection of all just damage claims.

No dealers are connected with the organization in any way and we have thrown about it every safeguard we could think of to insure to the growers a prompt, efficient, safe service, having eliminated every weakness we could discover in other similar organizations.

We commenced business September 1, 1913, and have made an enviable record to date. We have satisfied every man whose products we have handled; we have forced the local dealers to pay better prices in every locality where we have operated; we have furnished our shippers with more complete information as to market conditions than the local dealers and speculators could obtain, and have put thousands of dollars into the pockets of the farmers and fruit growers of Western New York, having even benefited those who did not sell through us by securing prices for their neighbors which gave them a knowledge as to what they should receive for their products.

We have demonstrated the advisability of honest grading and packing to some of the fruit growers as it was never before demonstrated; we have relieved our members of a great deal of trouble and worry by fighting their battles for them and collecting their just damage claims. We have demonstrated not only the advisability of coöperation, but the necessity for it.

We have secured a better distribution of the products of the farm and orchard, thereby helping to hold the market up and prevent disastrous gluts.

We have perfected a selling agency that can handle unlimited tonnage, because we have all the markets and all sections of the country to draw on for information and orders. We are organizing branch exchanges as fast as we can and if we receive the support to which we are entitled, will in a year or two be able to supply the consumer with a higher grade of products than he has ever received from New York State.

By the elimination of much unnecessary expense and needless commissions we will be able to secure better prices for the producer and at the same time sell to the consumer (if he will take the trouble to do his part) for less money than he pays today. To a very large extent the consumer himself is to blame for conditions about which he complains so loudly. The "high cost of living" is due very largely to the fact that the consumer insists on buying everything by telephone, and makes no effort to get in touch with the producer. The producer stands ready to coöperate with the consumer, but the consumer must do something besides howl over high prices before he will accomplish very much in his own interest.

The Eastern Fruit & Produce Exchange represents a deliberate effort on the part of the producers of this state to secure for themselves a larger part of the consumer's dollar; it represents a determination on the part of growers to eliminate all unnecessary expense in the sale and distribution of their products; to put a stop to the ridiculous custom of the farmer and fruit grower going through life asking two questions, "How much is it?" and "How much will you give me?"—letting some one else name the price on everything that he buys and everything that he sells.

At Morton the past season we were able to average a net f. o. b. price of 65 cents per 14-quart Jersey basket and \$1.40 per bushel on peaches for our members, when those growers who sold to dealers received 35 cents per Jersey basket and 75 cents per bushel. It is conservative to say that had we handled all the peaches at Morton the past season the growers in that district would have received \$10,000 more than they did. Just as soon as we commenced business and the people learned that we were getting those prices the local dealers began paying more, because they could not get the fruit in any other way, although they had

insisted previously that 1½ cents per pound (which amounts to 75 cents per bushel) was the most that they could or would pay, and had bought thousands of baskets at that price. Every peach-grower at Morton has joined the exchange except one, who is a dealer also, and can not get in. We sold prunes by the carload at 30 cents per basket (8 pounds) f. o. b., when local dealers would pay only one cent per pound. We saved our members \$5 per thousand on their peach baskets. We sold apples by the carload for \$3.35 and \$3.50 f. o. b., when local dealers would pay only \$2.50 and \$3. We have sold cabbage for \$23 and \$25, when local dealers would pay only \$20 per ton; the lower prices paid by the dealers in no way benefiting the consumer. On the contrary, the difference represents the dealer's profit on the transaction, the product always reaching the consumer at as high or higher prices than we sold for. The farmer should remember that the dealer does not buy his products to eat, but to sell at a profit, and that profit is more than 10 per cent., which is the commission charged by the Eastern Fruit & Produce Exchange for distributing and selling. We do not blame the local dealer. He has a perfect right to buy as cheaply as he can and make as large a profit as possible; but we do say that the grower is a fool to allow any one to put a mortgage on everything he produces, thereby exacting tribute of from 10 to 50 per cent. on the reasonable market value of his crop.

New York State furnishes the finest field for successful coöperative selling of any section of our great country. We produce more apples in the Empire state than are produced in all the seventeen states west of the Missouri river. The whole world has heard of the wonderful Hood River Valley of Oregon and the famous Wenatchee Valley in Washington, but these are insignificant when compared with the great fruit districts of New York.

We ship more apples in one year from half a dozen stations on the New York Central, near Rochester, than are shipped from the entire states of Washington and Oregon combined. It is time that the whole world knew this. I have only mentioned apples, but we are also heavy producers of peaches, pears, grapes and other fruits as well, and in vegetable products.

According to the last census, New York produced in 1909 over 48,000,000 bushels of potatoes, having a value of over \$20,000,000.

In addition we are large producers of onions, lettuce, celery, cabbage, etc. With this tremendous tonnage of varied products there is every justification for coöperation on the part of producers, and it can be readily seen that we have a great advantage over many other sections where coöperation has been successfully carried on. We have a continuous season of practically eight months in which to operate each year. The greatest handicap we have to contend with in the East in securing genuine coöperation is found in the growers themselves. They have been able for so long to dispose of their products at prices which insured a profit that they have failed to take note of changing conditions and the enormous increase in the acreage of all kinds of fruit and vegetables not only in our own state but in all sections of the country. We in New York, although producing the finest flavored, best keeping apples in the world, have not kept pace with other fruit-producing states in the matter of proper grading and packing, with the result that our reputation has suffered, and Canada and other sections, with more rigid inspection and better packing, have been gradually stealing our export business from us. This must stop, if we are to secure for ourselves the returns we hope for from our investment in the orchards of New York.

There must be honest, uniform grading of our products from now on. The "cull" must be left out of the package, and the only way this can be accomplished voluntarily is through coöperative central packing houses, where every basket or barrel of any grade is exactly like any other basket or barrel of the same grade. There is no experiment about this; it has been successfully worked out in other sections of the country, with the result that these sections are today famous the world over, and they could not possibly have attained this success in any other way, being handicapped as they are by being so far removed from the great markets of the country and the ports of export. I refer in particular to the Pacific Northwest and to California.

It is high time that New York growers awoke, not only to the possibilities of their business but to the necessities of it.

If we can not secure honest grading and packing of fruit in this state in any other way, we will do so by passing legislation that will compel it. We have the Sulzer Law, which is optional,

and not one grower in one hundred took advantage of it the past season. It is evident that what we need is a law that will compel the grower and dealer to pack honestly. With regard to this I wish to say that the grower has been unjustly credited with all the evils of dishonest packing. To my certain knowledge a large proportion of the apples in this state have been packed by dealers for several years, and the methods of some of them would put to shame any farmer in the state; but whenever a complaint is made by the consumer, the blame is always laid at the door of the farmer, when, as a matter of fact, the farmer in about eight cases out of ten did not pack the apples at all but sold them "tree-run" to the dealer, who promptly put all the poor apples in the middle of the barrel. One New York dealer once said, when remonstrated with at Morton where he was openly doing this sort of thing, "Oh, that's all right; the consumer only pays for two bushels, anyway."

Such shortsightedness has already cost the growers of New York thousands of dollars, and it is time that we woke up to a full realization of the situation as it actually is and applied the remedy which has brought success in other states. New York is producing a finer grade of fruit than ever before and more of it, and the problem that confronts us is, how to sell it.

The selling of fruit is a specialized industry and should be handled by experts, but the only way that this can be accomplished by the growers themselves is through coöperation. If the growers will get together, and stick together, it will be merely a question of good business methods, with the element of honesty always present.

The farmers of New York would do well to take heed of the methods employed by other industries and combine their interests, thereby reducing expense of production and marketing to a minimum. The farmers of New York have the situation in their own hands and it is up to them to take advantage of the opportunity. By standing together they may secure not only better prices for their products but better transportation facilities and legislation favorable to their interests. The farmers of the Empire State, if they would stand together, could dictate the election of a Governor and legislature; they could raise the standard of quality of all our varied products and set the pace for the entire country. We should

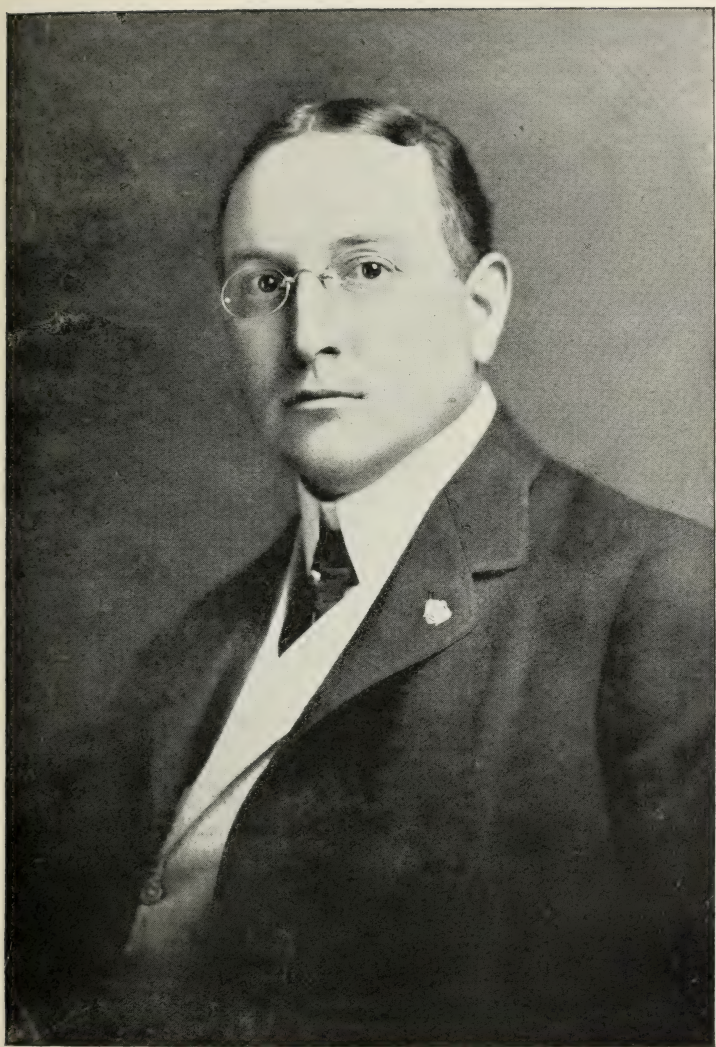


FIG. 236.—SETH J. T. BUSH, MORTON, N. Y.

never be satisfied with anything but first place in the matter of the excellence of our products, and with that will come satisfaction and pride in our business and prosperity beyond all expectations.

The Eastern Fruit & Produce Exchange stands for better methods; better prices for what you buy and what you sell; a wider distribution of your products; a discovery of new markets; the prevention of "gluts" anywhere; better transportation facilities; saner legislation affecting our business, and a reputation for quality unexcelled. We stand for the elimination of the unscrupulous speculator. We believe in the farmer doing his own "gambling;" we believe in the distribution of our products to every nook and corner where they will be appreciated and consumed; we believe in organized selling and buying by such an institution as ours, which has been organized by growers, is owned and controlled by growers for the benefit of growers.

Our proposition is a call to reason. We aim to make New York fruit the standard of excellence the world over, and with the loyal coöperation of the grower we can do this.

We urge every grower who is proud of his state and hopes for the reward to which his investment and labor entitles him to support us in this effort to elevate the standard of our products and increase his own prosperity. Do not be content to be "dumb driven cattle" any longer, but rise above the petty neighborhood suspicions and jealousies and show the world that there may be "Captains of Industry" on the farms as well as in the industrial centers of the Empire State. Cease permitting yourselves to be exploited and used by speculators to be played one against the other to force prices down, but, standing together, reverse the order and play speculator against speculator to force prices to a point that will insure your honor and prosperity among your fellow men.

VOICE: The gentleman said, "It is time the world knew it." I would like to know how they are going to find out about it. I noticed last year in reporting the meetings of this association very little space was given it in the papers. A short time before, a dog and chicken show was held and very much more space was given to it. In view of that fact, I would like to ask whether it

would not be a good idea for this association to petition our papers to give a little more space to what takes place here, so that the world may know more about it.

MR. WADSWORTH: The Chair hopes the representatives of the press will digest that suggestion.

We are now to hear from Mr. Ezra A. Tuttle, of Eastport, on the subject, "Coöperative Work of the State Grange."

COÖPERATIVE WORK OF THE STATE GRANGE

EZRA A. TUTTLE

The New York State Grange for several years has studied and discussed the subject of coöperation. At the last annual meeting in Buffalo, February 1913, it adopted a report of its committee on coöperation and trade, which provided for the appointment of a committee to prepare a general plan for coöperative organizations, so that there might be substantial uniformity throughout the state. The report also provided that after the plan was reported to and approved by the executive committee, a supervisor of coöperative organization work should be appointed to carry forward the work of organization among producers. The plan was submitted to the executive committee last August at a meeting in the city of Watertown, and after full discussion and due deliberation was approved. The following is the report:

To the Executive Committee of the New York State Grange:

GENTLEMEN.—Your committee on plans for coöperative organizations, appointed pursuant to resolutions adopted at the meeting of the State Grange in Buffalo, February, 1913, respectfully submits the following report:

The benefits of coöperation for producers and sellers of farm produce are no longer doubtful or speculative. Nearly all of the countries of Europe have demonstrated by years of successful practice the financial, industrial and social advantages of coöperative societies. Denmark and Ireland owe their wonderful advancement and prosperity in recent years very largely to a general practice of coöperation. In this country many coöperative

societies have prospered and been of material benefit to their members. Wisconsin is probably the leading state in successful coöperation. The dairy and fruit interests are getting to be masters of their own business instead of being the slaves of the jobbers and other middlemen.

The time has come when producers must get more profit or production will be materially curtailed. Already certain lines of production are being abandoned, not because of over-production or lack of demand from consumers, but because producers individually can not get their stuff to the market and realize a fair profit. There are too many handlers between producers and consumers.

The work of your committee has been greatly simplified by the work done in securing the enactment of a law authorizing the incorporation in this state of coöperative societies. Chapter 454, Laws of 1913.

We recommend that copies of this law be printed and distributed over the state through the granges.

We believe that coöperative societies should be organized and incorporated under this law in every locality producing for market any considerable quantity of farm produce, or buying for the farm and house feeds, fertilizers and other supplies in considerable quantities.

We recommend that the capital in most cases be small and the shares widely distributed, and that all extravagance in business ventures and expenses be carefully avoided.

We also recommend that, until the capital of the society be ample, all dividends be credited on account of capital stock, and be paid by a stock dividend.

Every society must be governed by local conditions and the character of the business to be done, in the details of organization, the amount of its capital, the character of its membership and its methods of doing business.

All coöperative societies in the state should be federated in a central organization, also incorporated under the same law, to manage the selling and buying for local societies. In this way only can we secure coöperation among societies, as well as among individuals — one quite as essential as the other,

The local societies should be members of the central organization and receive dividends on the volume of business done by them through the central organization. These dividends for a time should be credited to a capital stock account, and be paid by a stock dividend.

The central organization should organize and operate a system of receiving and manufacturing terminals and of retail distributing stores, along lines submitted for consideration by the National Housewives' League, which are now being carefully mapped out for the city of New York. A copy of the outline of such a plan is herewith submitted.

Every local society should subscribe for at least one-fifth as much stock in the central organization as it has issued of its own stock. This, with the accumulating dividends and the subscriptions and dividends of consumers, will provide and gradually increase the working capital of the central organization.

The central organization should be broad enough to take in local societies of producers all over the country, and branches of the central organization should be established ultimately in all the larger distributing centers.

The work of organizing local societies of producers in this state can be accomplished largely through the subordinate granges under the direction of a competent supervisor to be appointed by the state grange.

Blank legal forms for the incorporation of coöperative societies have been prepared and are submitted herewith.

A general form of by-laws for local societies has been prepared to serve as a guide, but may be changed to meet local conditions, and is herewith submitted.

Every local society should require its members to pay into a reserve fund \$1 for each share of stock subscribed and paid for at par. This reserve fund may be used by the local society to purchase stock in the central organization as provided in section 32 of the Coöperation Law.

Dividends will be declared and paid as provided in the law, or as modified by the by-laws of each society, not contrary to law. Every local society should be entitled to one member on the advisory board of the central organization.

*Report made to and adopted by the National Housewives' League
and Allied Organizations of Consumers in the City of New
York:*

Your committee appointed at a conference recently held to prepare and submit a general plan for markets for the city of New York, respectfully submit the following report:

We believe that all consumers in the city of New York, as well as producers of food stuffs throughout the country, recognize that the profits and charges for handling, selling and distributing food stuffs in the city of New York under existing conditions are the principal causes of the high cost of living to consumers and inadequate returns to producers. It is unnecessary to review in detail the present practices of handling food stuffs in New York City through numerous middlemen and intervening agencies. This condition has grown up and become more and more expensive and uneconomic as the city has expanded in all directions.

The location for receiving and distributing food stuffs at the lower west side of Manhattan Island may have been proper and suitable many years ago when the city was small, but at the present time this location is totally inappropriate and inadequate. One such receiving center is no longer sufficient for all the boroughs and the vast population of the city. The concentration of the receipts of food stuffs on the lower west side of Manhattan Island results in great congestion, great delay and great expense.

We believe the establishment of the proposed terminal wholesale market in the vicinity of the present Gansevoort Market is subject to all of the objections above indicated, and will only serve to perpetuate the present conditions of receiving, handling and distributing food stuffs. No doubt the new market would improve conditions in some degree by being modern and affording better facilities for unloading from cars and for proper inspection of both premises and products; but it would in no degree eliminate any of the present unnecessary middlemen nor dispense with the necessity of long cartage to every other section of the city.

Instead of an expenditure of \$10,000,000 or more by the city in establishing this market, we believe it would be a much wiser policy for the city to expend such a sum of money in establishing ten or more receiving terminals at different points along the North and East Rivers for the Boroughs of Brooklyn, Manhattan, and the Bronx, with one or more in Queens and Richmond. If these receiving terminals were properly located, they would be most accessible to the points of distribution and the homes of consumers. These terminals should, of course, have direct connection with the railroads and steamship lines to reduce handling expenses to a minimum. Your committee recommends that this plan be urged upon the city authorities in place of the proposed one for a terminal and wholesale market in the Ninth ward.

In addition to the receiving terminals for the different boroughs above mentioned, your committee recommends that retail department food stores of sufficient number be centrally located in residential districts to accommodate the purchasing public. Each of these retail department food stores would accommodate from 30,000 to 50,000 inhabitants, according to density of population. They should be located centrally in the districts and the boundaries of the district should coincide so that each market would serve its own district and avoid distant deliveries and a multiplication of delivery service. These district retail department food stores should be modern, sanitary and attractive. They should be equipped with the best known appliances for handling, selling and delivering food stuffs directly to consumers. They should carry all kinds of food stuffs and prices should be uniform in all stores for the same grade of food. This system of receiving terminals with cold and general storage facilities together with the system of district retail department food stores would solve for all time the problem of economic handling and distribution of food stuffs in the city of New York, and would provide for all future expansion of the city.

Your committee believes that upon the establishment and proper equipment of the receiving terminals above suggested, the consuming public would coöperate for the establishment and operation of the several district retail department food stores. All of the receiving terminals and department food stores should be under one general management and this management should be devolved upon a coöperative operating company to be composed mainly of producers furnishing food stuffs to New York City and vicinity and the consumers of such food stuffs. Such a plan would reduce to the lowest possible terms the handling of food stuffs from producers to consumers, and would give producers more than they now receive from their products and would materially lessen the cost of food stuffs to the consumers. A conservative estimate of the savings of the consumers of New York City under such a system would be from sixty to one hundred millions of dollars per annum.

In case it should be deemed impracticable to establish this comprehensive system of receiving terminals and retail distributing stores, as a definite, general policy for the permanent, scientific and economic solution of the present problem of food distribution, your committee suggest that one or more of such receiving terminals be established as soon as practicable, and that as many as possible of the retail distributing stores be organized co-operatively as soon as practicable, to demonstrate the feasibility and economic utility of the plan.

Arrangements should be made by the operating company to pay a reasonable rate of interest on the investment by the city in establishing the receiving terminals and in case the city would build and equip the distributing stores, the operating company should likewise pay a reasonable rate of interest to the city upon this investment.

Respectfully submitted,

BY THE COMMITTEE

Outline of plan for receiving and distributing food stuffs in the City of New York, submitted for consideration by the National Housewives' League.

The problem of feeding the vast population of New York City comprises three distinct factors:

1. Receiving foodstuffs from the transportation company and handling same to the retail stores, the factories or in cold or general storage.
2. Selling at retail and delivering to consumers.
3. Manufacturing surplus and products liable to loss by deterioration.

Let us consider these factors in the order stated.

It must be obvious to anyone on reflection that the concentration of the receipts of food stuffs in one locality, no matter how centrally located, necessitates much handling, long hauls, great congestion and delay, unnecessary expense and serious deterioration of quality. Such a system is unscientific, inefficient and wasteful.

There should be three or four receiving terminals on North river for Manhattan from Harlem to Canal street, with direct

railroad tracks from car floats or railway lines to permit cars to be run into the terminals and to be unloaded without extra handling and cartage.

On East river, there should be at least three such receiving terminals for Manhattan, three for Brooklyn, one for the Bronx and one for Queens. Cars can be brought on floats from all railroads to these terminals.

TERMINAL BUILDINGS

The terminal buildings should be at least 100 x 200 and seven or eight stories high. The ground floor should be used for car tracks, unloading platforms, space for teams and auto trucks and elevators. Two or three floors should be used for general storage, two or three for cold storage and the top floor for manufacturing food stuffs, as will be more fully explained. Arrangements should be made to direct shipments to any terminal according to requirements. All classes of food stuffs should come direct from primary shipping points to the specified terminal in New York without breaking bulk. Shipments by express, by boat and in less than carload lots should be handled to the most convenient terminal or direct to the retail stores.

RETAIL DEPARTMENT FOOD STORES

The city should be divided into districts, as nearly square as practicable, each district having a population of 30,000 to 50,000 according to density. About in the center of each district a retail food store should be located of ample dimensions, fitted up with modern, labor saving appliances and every sanitary safeguard. In each store should be carried a full stock of every variety of food to be found in the city at any given season of the year. Here the lowest possible prices should be charged, and prices for the same grade and quantity should be uniform in all districts. Deliveries should be made only within the boundaries of each district to avoid distant and duplicate deliveries. Every inducement possible should be given to encourage customers to carry home their purchases. A record should be kept of the amount purchased by each customer, and all business should be done on a strictly cash basis.

THE MANUFACTURING PLANTS

In the receiving terminals, preferable on the top floor, there should be a completely equipped, modern, sanitary, canning, preserving and pickling factory. All surplus products not needed at the retail stores or suitable to put in storage, and all products liable to be wasted by deterioration, either upon their arrival or after having been carried for sale in the retail stores, should at once be sent to the factory and promptly and properly manufactured. These goods should, after being so manufactured, go into storage in the terminals, and in due course go to the retail stores for sale.

THE OPERATING COMPANY

The three departments above described, to wit: The receiving terminals, the retail stores, and the manufacturing plants, should be under one general coöperative management. The members and shareholders of the coöperative company should be the whole body of producers, sending their products to New York for sale and the whole body of consumers purchasing such food stuffs. The business should be so conducted that producers would always be paid a living price for their products, and consumers charged the lowest price possible to cover expenses. Any surplus of profits to be divided yearly between all producers and consumers doing business with the coöperative company to the extent of \$100 or more, in proportion to the business done. This system would place the whole business of food stuffs, from production to consumption, in the hands and under the absolute control of producers and consumers, where it should be, and all surplus profits would be divided by them and paid to them. The coöperative company would be their own company, managed by them for their mutual advantage without private gain or profit.

SOME SUGGESTIONS

Separate accounts should be kept for each department, but, after paying all expenses, the net profits should be pooled and divided.

The receiving terminal department should receive all products and pay in cash promptly 90 per cent. of the current wholesale price and in addition 10 per cent. in shares in the coöperative

company. This department should discharge all cars, delivering goods as required to the retail stores within its jurisdiction, or putting them in cold or general storage in the terminal building, or sending products to the manufacturing department, charging such department therefor. It should sell and deliver to the retail department at the smallest possible advance over cost all supplies required from day to day. It should take back from the retail stores each day products not in proper condition for sale, giving proper credit to the retail stores, and deliver same to the manufacturing department, making a proper charge for such products.

The retail department at all stores should charge uniform prices for the same grade of food stuffs, and this price should be as low as possible to safely meet expenses and accumulate a contingent fund or safety surplus.

The manufacturing department should be charged with all goods delivered to it and credited for all manufactured products at a price sufficient to cover cost and expense.

It has been estimated by the New York Food Investigating Commission after careful inquiry into the costs, expenses and profits in food distribution, that from \$60,000,000 to \$100,000,000 each year could be saved to the consumers in New York City by such a direct, scientific and economic system of food distribution.

The city owes to her citizens to furnish and equip the necessary receiving terminals upon being paid a fair interest on the investment, and the producers and consumers should unite in forming the coöperative company to conduct the business.

NOTE.—This system is applicable to cities and towns of any size and may be reduced to a single building, properly located, to be used as receiving station, retail store, factory and storage warehouse.

FORM OF CERTIFICATE OF INCORPORATION

We, the undersigned, all being of full age and two-thirds being citizens of the United States and at least one a resident of the State of New York, for the purpose of forming a corporation under Article 3 of the Business Corporations Law, do hereby certify and set forth as follows:

First: The name of the said corporation shall be
, Inc.

Second: The purposes for which the corporation is to be formed are as follows:

I. Conducting a general producing, manufacturing and merchandising business on the coöperative plan (as limited in said article 3 of the Business Corporations Law) in articles of common use, including farm products, food supplies, farm machinery and supplies, and articles of domestic and personal use.

Third: The amount of capital stock of said company shall be dollars.

Fourth: The number of shares composing said capital stock shall be shares of the par value of five dollars each and the amount of capital with which said company shall begin business shall be dollars.

Fifth: The principal business office of the company shall be located in the

Sixth: The duration of the corporation shall be perpetual.

Seventh: The number of the directors of said corporation shall be .. (not less than five), all of whom shall be stockholders. The names and addresses of the directors for the first year are as follows:

<i>Names</i>	<i>Addresses</i>
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Eighth: The names and post-office addresses of the subscribers to this certificate and the number of shares of stock which each agrees to take in said corporation are as follows:

<i>Names</i>	<i>Post-office addresses</i>	<i>No. of shares</i>
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IN WITNESS WHEREOF we have made, signed and acknowledged this certificate in duplicate this day of, 191.
(Acknowledgments.)

FORM OF BY-LAWS FOR COÖPERATIVE SOCIETIES

ARTICLE I

NAME

The name of this corporation is Coöperative Society.



FIG. 237.—EZRA A. TUTTLE, EASTPORT, N. Y.

ARTICLE II

LOCATION

The principal business office of this corporation shall be located in

ARTICLE III

PURPOSE

The purposes of this corporation are: Conducting a general producing, manufacturing, merchandising business on the coöperative plan in articles of common use, including farm products, food supplies, farm machinery and supplies, and articles of domestic and personal use.

NOTE.—Any or all of these purposes may be specified.

ARTICLE IV

DIRECTORS

There shall be five directors, all of whom must be stockholders, who shall have general charge of all the business and property of the corporation.

ARTICLE V

OFFICERS

The officers of this corporation shall be chosen from among the directors as soon as practicable after the annual meeting. They shall consist of a president, a vice-president,* a secretary and a treasurer.

ARTICLE VI

DUTIES OF OFFICERS

The duties of the officers shall be those generally appertaining to the several offices and such additional duties as may be prescribed by the Board of Directors.

* More than one vice-president may be chosen if desired and one person may fill the offices of both secretary and treasurer.

ARTICLE VII

MEETINGS

Section 1. The annual meeting of this corporation shall be held on the second Tuesday of January in each year at the principal business office of the corporation and other regular meetings shall be held on the last Saturday of May and November.

Section 2. Special meetings may be called at any time by the president or by order of the Board of Directors and must be called by the president at any time on the written request of ten or more stockholders.

Section 3. Quorum. A majority of all stockholders in any regular or special meeting shall be required to constitute a quorum of stockholders, and a majority of the full number of directors shall be required to constitute a quorum of directors.

ARTICLE VIII

CAPITAL STOCK

The capital stock of this corporation shall consist of dollars, which shall be represented by stock shares of the par value of five dollars each.

ARTICLE IX

STOCKHOLDERS

Section 1. Any person owning one or more shares of the capital stock of the corporation fully paid shall be a stockholder and entitled to one vote at any regular or special meeting, but no stockholder shall be entitled to more than one vote, irrespective of the number of shares of stock owned by him.

Section 2. No person shall own capital stock of a greater aggregate par value than five thousand dollars.

ARTICLE X

ELECTION OF DIRECTORS

A full board of directors shall be elected at each annual meeting, but vacancies may be filled by the remaining members of this board or by a special meeting of stockholders.

ARTICLE XI

NOTICE OF MEETINGS

Section 1. A written or printed notice of all regular or special meetings shall be mailed by the secretary to each stockholder at his last known address at least ten days before the date of such meeting.

Section 2. The notice of a special meeting shall specify the business to be considered and transacted at such meeting.

ARTICLE XII

VOTING

Any stockholder may vote by properly constituted proxy or in writing, provided the question upon which he votes in writing shall have been submitted to him printed or written and attached by him to his vote thereon.

ARTICLE XIII

MANAGER AND EMPLOYEES

The board of directors may employ and appoint a manager and such other employees as may be required for the business purposes of the corporation.

ARTICLE XIV

DIVIDENDS

Section 1. The board of directors may declare a dividend out of the net earnings of the business of the corporation not to exceed 6 per cent. per annum on the existing capital stock of the corporation.

Section 2. The directors shall set aside annually at least 10 per cent. of the net earnings of the corporation as a reserve fund until the reserve fund shall equal 30 per cent. of the paid up capital stock. They shall also set aside annually 5 per cent. of the net earnings for an educational fund to be used in teaching coöperation.

Section 3. The remaining net earnings of the corporation shall be distributed by uniform dividends to members of the first class and members of the second class. Members of the first class shall include stockholders and employees. Members of the second class shall include non-stockholders who shall, during any fiscal year, do business with the corporation amounting to not less than one hundred dollars. Dividends shall be paid on purchases amounting to one hundred dollars and over from or by members and on the amount earned by each employee during the fiscal year. Members of the first class and employees shall be entitled to dividends at double the rate of dividends to which members of the second class shall be entitled. Dividends to non-shareholders may be paid to such non-shareholders in the capital stock of the corporation at par.

RESERVE FUND

Section 4. A reserve fund of at least 20 per cent. of the capital stock subscribed and paid for shall be subscribed and paid to the company at the same time.

Section 5. All dividends for a period of five years may be paid in capital stock at par.

ARTICLE XV

FISCAL YEAR

The fiscal year or corporation year shall be coincident with the calendar year.

ARTICLE XVI

SURETY BONDS

Any officer or employee of the corporation shall give such fidelity or surety bonds as may be required by the board of directors.

ARTICLE XVII

AMENDMENT

These by-laws may be amended at any regular or special meeting of the corporation, provided the proposed amendment shall have been submitted in writing to the stockholders with the notice of

the meeting at which such amendment will be considered and acted upon. A majority vote of the stockholders present at such meeting shall be necessary to adopt such amendment.

Two later conferences were held by the executive committee and the committee on coöperation, one in Syracuse in September and one in New York in October. At the latter conference the Housewives' League and the State Department of Agriculture were represented. The plan as reported to and approved by the State Grange was discussed and approved. A later conference was thought to be desirable, to which delegates from other state granges, and from departments of agriculture of other states and the Federal Government, and other organizations of producers and consumers were to be invited. The time agreed upon for such later conference was during the meeting of the New York State Agricultural Society in Albany, January, 1914. You have participated in that conference and know the results.

In addition to the foregoing work, some of the pomona and subordinate granges have been taking an active interest in coöperative organization.

The Suffolk County Pomona Grange at its meeting in December, 1913, by resolutions created a bureau of "information and markets" and appointed W. P. Hartman of the L. I. R. R. Experiment Station at Medford, L. I., as chief of the bureau. All the subordinate granges were requested to create like bureaus and appoint chiefs thereof. The plan is to compile lists of everything members have for sale or wish to buy and issue and distribute these lists to all granges periodically. It is hoped to extend this plan throughout the state.

The grange is unquestionably the most potential influence for the betterment of agriculture and rural life in this country. Its membership includes the brawn and brains of the country. It is a sleeping giant, just awakening, and I predict that in the near future the grange, the great order of patrons of husbandry, will make demands and exert pressure that will bring golden days to the farmer.

I take the liberty of offering the following for discussion and consideration.

After long and careful study and investigation into the causes of the high cost of living and poor returns to producers the con-

clusion seems to be unanimous that the greatest and most direct cause is the high cost of distribution.

The report of the National Department of Agriculture, recently issued, says:

"The long line of distributors and middlemen between the farmer and the consumer are in a position to take advantage of the market, and to a certain extent control the market, in both directions, because they are better organized to keep informed of crop and market conditions and to act promptly than either farmers or consumers, who are not organized, and as individuals are helpless.

"The high prices paid by consumers, ranging from 5 to nearly 500 per cent. in some cases more than the farmer receives, indicate that there is plenty of room for lowering the cost of farm products to consumers, and at the same time largely increasing the cash income per farm without increasing farm production."

The discussion that has been so active and widespread for several years past has done much good, but it has not yet brought forth the remedy. We know the trouble, and we are fairly agreed on the plans for the remedy, but to execute the plans and apply the remedy requires money — much money. Producers and consumers are unorganized and can not raise money to initiate the reform.

Large capital is already invested in the present system and will fight bitterly any change.

The plans for a new, scientific and economic system preclude the investment by banks, syndicates, and combinations of capitalists in large amounts for private gain. The problem must be solved, not by the bankers, but by the people. How shall the people proceed? Manifestly, they can not act as individuals, and their efficient general and united organization is government — national, state and municipal.

The people are the government and government is only the instrumentality to serve the people collectively. Producers and consumers comprise the whole people and have the right to invoke the aid of government in any matter for the public good.

Municipal government should establish at points reasonably accessible to the consuming population, receiving terminals with

adequate facilities for carload and steamboat deliveries, with ample capacity for storage, both cold and general, and with manufacturing equipment to prevent waste. They should also provide retail markets. The operatives of receiving and distributing food stuffs should be conducted by a coöperative company under the supervision of a state or municipal "food and markets commission." The state should furnish capital or credit sufficient to insure the permanent success of the operating company until such time as the capital shall be earned and represented by stock paid as dividends to and held by the coöperating producers and consumers.

The National government should aid in the organization of producers, in better methods of production, grading, packing, and transportation, and should issue daily bulletins, both local and general, giving the fullest information about supply and demand, sources of supply, shipments, quotations, rates of transportation, storage and general information useful to both producers and consumers.

The department of agriculture of all the states, the national grange, all state and subordinate granges, and all organizations of producers and consumers should unite in concerted, simultaneous action to compel the enactment of proper and necessary legislation to secure the establishment and successful operation of a sound, economic system of food distribution.

I am aware that the foregoing proposition will excite some surprise, will meet with opposition from many sources, will be characterized as revolutionary and perhaps socialistic. I ask you to study the subject, try to devise a remedy, follow your thought to its ultimate, practical application and operation, and then confess that the present system of food distribution is so monstrous that revolution is the only remedy. The state expends hundreds of millions of the people's money for canals and good roads, and no one cries socialism. The city of New York spends hundreds of millions to supply the people with water. The people cry for bread, the government gives them water! The city lends its credit to the amount of hundreds of millions to build subways and then allows them to be operated for private gain, but no one cries, "socialism."

Furnishing facilities to feed the people properly and economically, promoting the welfare of agriculture, making greater and better production profitable, and dividing all the benefits with the people under coöperation, is a reform that calls for no excuse, justification or apology.

MR. WADSWORTH: Gentlemen, the major portion of the discussion of this program has been largely from the standpoint of the producer. It is therefore a matter of interest to the society that we are to be told today something from the standpoint of the consumer. You have doubtless heard of the National Housewives' League, a novel public-spirited organization and movement that is fast gaining strength. It is also well for us to remember that the consumers who are banded together in this first movement in their own behalf are not inspired with any spirit of rivalry or contention with the producers. Their idea is to help themselves, of course; to better their condition, but at the same time by doing so to help the producers upon whom they depend for daily food. It is a matter of great congratulation to all of us, I think, that we have here this afternoon the President of the National Housewives' League, who is to tell us of the great work that movement has embarked upon. I take great pleasure in presenting to you, Mrs. Julian Heath, of New York City.

HOW HOUSEWIVES CAN COÖPERATE

MRS. JULIAN HEATH

First of all I wish to say that I am here to learn and not to teach, but I also wish to say that I am very proud to introduce to you a new factor in the economic life,—the organized housewife.

The Chairman said that you might have heard something of the Housewives' League. I believe I can begin my talk no better than to tell you what the Housewives' League is, and possibly if I tell you why we organized, how we became organized, you will then see the connection between the Housewives' League and the producers better than I can tell you.

Some two and one-half or three years ago when we began to hear about the high cost of living and, furthermore, to feel it, we were

told it was on account of drought, it was because of decreased output, or we were told it was because the producer did not produce enough and that the consumers consumed too much. Then we had numerous commissions appointed, if you remember, to inquire into the reason for all this. Someone on one of these commissions took into consideration the housewife as an important factor. But as we looked these findings over and considered the matter, we saw that as this whole problem of the high cost of living pertained to the home, it was the housewives' problem. While the research work was of great value, the practical solution of the problem fell to the housewife. Why? Because the women of this country spend, statistics tell us, 90¾ per cent. of the money. Up to that time I do not believe the women had realized what their real function was. When we get an invitation to a wedding, the first thing we ask is, "Can the man support the girl he is to wed?" We do not ask the question, "Can the woman properly spend what the man produces?" That is a different question entirely. That marriage is a contract by which the man becomes the producer of the funds and the woman the administrator. That is really the economic function of the woman,—the administrator of the household. As I said before, I do not think that the women quite realized that until we took up the consideration of the high cost of living. Statistics tell us that nine-tenths of the incomes of our middle class and three-fourths of the incomes of the lower class, are spent directly by the women. As soon as we reached that point, we saw for the first time that our housekeeping was really a profession, a science, and that it must be put on a business basis.

I can not tell you all of the problems we have coped with, they are numerous. I want to get right down to the one fundamental thing which we tackled first and foremost — the marketing problem. We appointed a committee — a high cost of living committee, whose first act was to go out and find out where the public markets were in New York City. That is a confession, it proved conclusively that the women knew nothing at all about the markets of New York City. They brought back their findings and it was shown that there was only one public market in New York City. That opened our eyes to the situation.

If we were to reduce the cost of living we must do something to bring the producer and the consumer together. We came to this conclusion, that through the women the spending power of the country has been woefully wasted; that is, the majority of the women had not marketed with any intelligence at all. How can I tell you of these marketing conditions better than to tell you of some things that happened. For instance, the average woman of the country over knows very little of the seasons of production; knows very little of transportation; very little of marketing. We had very little knowledge of the seasons of production. One day late last spring an enthusiastic housewife called me up on the telephone and said, "I have been searching the city over and over for celery and have just found it, but the price is so high I am sure we ought to do something about it."

"Celery," I asked in amazement, "at this time of the year?"

"Yes," she answered, "Why not; do they not grow it the year round?"

A dealer last summer said this: "I never know what to buy, When peas are in season the women want lima beans, and when lima beans are in season they all want peas which went out months ago." We have become so used to having everything we want just when we want it (demanding asparagus and peas and all of the summer vegetables in the winter), that we have really forgotten that there still exists the good old-fashioned turnips, parsnips and onions. Summer vegetables grow to be used in the summer and winter vegetables in the winter. We have forgotten this. We have reversed this order and then complain about the high cost of living.

We knew nothing at all about production; nothing at all about the marketing of products. Furthermore, the women know nothing at all about the real market value of things. Men know the market value of all they buy, but the women know very little of the market value of things. A woman goes to a store and asks, "How much is butter today?" She is told fifty cents a pound. "Rather high, is it not?" she asks. "Yes," agrees the tradesman, "but there has been an earthquake (or a cyclone or a shipwreck) and the price has gone up." The woman sighs, remarking that it is "too bad," but purchases the butter just the same.



FIG. 238.— MRS. JULIAN HEATH, PRESIDENT OF THE NATIONAL HOUSE-
WIVES' LEAGUE.

There is no argument, no investigation, no questioning of the statement — the housewife just buys, taking the tradesman's word for it. She really has no knowledge whether the real market price is higher or lower. Now, how long would a man's business, conducted on this line, last?

Take the question of eggs for instance. Up to two years ago the city housewife knew practically nothing about eggs. In the summer of 1912 I was in Chicago where I met an egg expert and among other things which I learned was: That the average housewife in and about New York City should not pay more than 35 cents for her eggs until long after Christmas. In the winter, however, the prices began to soar; they ranged anywhere from 35 to 85 cents — what you might call a flurry in eggs. I wrote back to my Chicago friends, telling them this fact and asking the reason. The reply was, "If your women are paying 50 cents for a strictly fresh egg they are paying none too much, but, as a matter of fact not more than 2 per cent. of the trade can have those eggs. Therefore, you are paying a fancy price for a cold storage product." Then we began to say, "What is a cold storage egg? What is a cold storage product?" In our great ignorance we supposed they were all bad. They are about the only kind of eggs we get in New York City. We found we were paying a fancy price for storage eggs, but I assure you that up to about that time the average woman did not know that the hens did not lay all winter. We supposed when we saw those eggs marked "strictly fresh" they were really so. We have been buying storage eggs and not knowing it. We began last year a campaign to get the storage egg at a storage price. If you will permit a personal reference I will tell you of one of my experiences during this campaign. I went into a store where I saw three crates of eggs marked 30, 35 and 50 cents a dozen. I said to the tradesman, "What are those 50-cent eggs?" He replied, "Fresh eggs, madam." "Yes," I said, "I know — fresh eggs, but what kind of fresh eggs; are they western eggs or state eggs, or what?" The tradesman began to look interested, but still asserted they were "fresh eggs." I then said, "As a matter of fact, are they not storage eggs?" To which he reluctantly replied, "Yes." "Now here," I said, "You know and I know that the

best cold-storage eggs should not be, at this time of the year, more than 30 cents a dozen." He looked at me quite seriously and asked if I were a "wholesale dealer." I told him I was not. "Well," he said, "you seem to know about it, you can have them for 30 cents," and out of the box marked "Strictly fresh eggs, 50 cents a dozen" I obtained one dozen for 30 cents. "You seem to know" was the secret.

By the way, before I leave the egg proposition I want to say that during our last campaign, while we were trying to get cold storage eggs at a cold storage price—we were asking for a cold storage egg at 32 cents a dozen—I read hundreds of letters from producers out in Oklahoma saying, "We sold those eggs to the shippers for 8, 10, 12 and 16 cents a dozen at the highest. Please tell me why the producer should get anywhere from 8 to 16 cents for eggs and the consumer pay anywhere from 30 to 80 cents. If the time ever comes when the producer should get 40 cents a dozen for storage eggs in April, we will then be willing to pay a fair price for them. The only thing we stand for now is that we must have a storage egg at a storage price.

Last year was a big apple year, as you all know. In New York City the apples seemed to strike a level of 15 cents a quart, 6 to the quart. I went down to the docks and found barrels of fine Baldwin apples selling wholesale at \$2.75 and \$3 a barrel. Fifteen cents a quart to the producer, 6 to the quart. We began to ask for cheaper apples, we thought we should get a 5-cent a quart apple. We began to ask for those apples and we began to get them. We got cheaper apples but did not get them as cheap as we should have had them. We did move the apple market. After the whole season was over I had letters by the score from apple growers—not so much from this state but from the western apple growers—and they said, "You have saved the apple growers millions of dollars."

About that time I had a telegram from Washington saying, "Can you do something to increase the consumption of onions? The supply exceeds the demand and the onion growers are in despair and stand to lose heavily." This was not so easy, for while we could ask the housewife to buy more eggs or apples, or

in fact almost any commodity of which there was an over-production, it was difficult to ask her to place onions on the table three times a day. At the same time it showed me this, that our Housewives' League was a factor in the market eagerly welcomed, and if these housewives became intelligent buyers they could act as a balance in the market.

Last year again, I remember the time when butter began to go up and up. We did not say very much. We did say through the press, "This is the time for the housewife to use some of the jellies, jams, and more gravies, and not quite so much of the butter." That night the market sheet said, "The butter market is firm, but there has been a sentimental decline of one cent." It was not just clear what that word "sentimental" meant, but we knew that in some way the housewives' suggestion to decrease consumption of butter had affected the market.

In trying to control the market, I want to make this quite clear especially to the producers and wholesale men, we are trying to affect it in an intelligent way. We want to affect it in no way so that the producer will be hurt. To put it purely on a selfish ground, the consumers realize that when that point comes it will be disastrous to them. We recognize that there must be the strongest coöperation between the producers and the consumers to control the market. Up to this time all attention has been paid to production, now we are beginning to see the need of better marketing facilities. Long ago our housewives recognized this. We knew that perfectly well, but now we are saying, "Organize intelligent consumption." Do you not see that in the economic world there are two factors — production and consumption? The production of the wealth of the world and the consumption of such wealth. We have paid all attention to production and no attention to intelligent consumption. Do you know we have become so used to having things out of season that really we have forgotten that there still exist the good old-fashioned onions, turnips and parsnips. In other words, we have come into this market game but we have come into it as intelligent buyers. Now, with that thought in mind, what has been done. So much that every single thought that any of your speakers brought out here today gave me almost a whole speech in itself. But I want to say this, that the

Housewives' League has to its credit for two years' work, 750,000 members; it has also to its credit the establishment of thirty-two public markets and they are coming along all the time. We are saying to the housewives, "Do not wait for an elaborate market, go out and get in touch with the producers in your own section." The consumer is seeing now what the great profession of producing is, and the producer is also seeing what the great profession of consumption is, and with the two combined it seems to me we ought to do wonderful things. All the way along the line women are working for the establishment of public markets, for direct touch with the producers by the parcel post. By the way, I do not think parcel post has worked out very well. As yet it is not satisfactory.

I believe we must take hold of these problems on big lines. Before I leave that thought I want to say this, that while the consumer is being educated, he feels that the producer needs a little educating; that is, in regard to the points where we touch. Last winter when fresh eggs were selling at an average price of 45 cents a dozen, a producer from the state of New Jersey came to town with three crates of eggs. He called me on the 'phone and said, "I can not get anything for my eggs; I can do better in Jersey." I said, "Take them back." On second thought I suggested, "Send me a dozen with the bill; I will see if I can dispose of some for you." He shipped me the dozen eggs, at 85 cents a dozen.

On the other hand, I find responsible producers, farmers' wives, handling eggs, who will send a dozen eggs and say, "Give me anything you want to." I was talking a short time ago to a number of producers, egg experts. They said, "Really, how much do you think eggs ought to cost?" I said, "What do you think?" They could not tell me a single thing about it. All the way along the line, we feel there is need of education. The consumer is getting it.

If I could only leave the gentlemen at this meeting with this thought, that the consumers or housewives are organizing. I am going up and down this whole country saying to the housewives "organize," and to the producers, "you are organized," but also saying that the consumer is beginning to plan for coöperation. We are getting the markets ready for you. Let me tell you this:

I believe that every producer in the state of New York is interested in New York City markets and should watch every move made for city markets in New York, because that is your market. Sometime we will have the producers so strongly organized and the consumer so strongly organized that we can have our own cold storage houses; the producers their own agents, the consumers their own agents; a coöperation that will bring to the producers more money and let the consumer pay a little less. Coöperation and a square deal for all.

MR. WADSWORTH: Mrs. Heath's address closes the formal program for this afternoon. Is there any discussion to come before the meeting.

MR. FRASER: The question Mrs. Heath has brought up is intensely interesting, because I think the producer fails to realize the amount of money it takes to fill these little orders. I have tried to do a little work in meeting the consumers, and as a business proposition there is nothing in it. Our present channels of distribution for the big grower are the only way. I am willing to go in just as soon as I see the money for I am working for a living, but at the present moment our methods of distribution are the only ones that I can see for the big grower. The dozen eggs that came along at 85 cents probably represented the amount of time that that man lost going down to the station because there was only one dozen to go. There must be some other way if we are ever going to get rid of present methods. It must be something better than parcel post under present methods, as I see them.

MR. WADSWORTH: The President of the society has some announcements to make and I will surrender the chair to him.

MR. SISSON: We are certainly grateful to Mr. Wadsworth for his kindness in presiding this afternoon.

On account of the request of one of the designated members of the Committee on Resolutions to be relieved, owing to the pressure of other work, I have made a slight change in the Committee on Resolutions. It will now stand as follows:

Chairman, Jas. W. Wadsworth, Jr., Dr. Thomas E. Finegan, H. O. Palen, J. J. Dillon, and C. W. Burkett.

I will also announce the Committee on Nominations:

Chairman, Senator T. B. Wilson, Rev. Brother Barnabas, Ezra Tuttle, Samuel Fraser, Honorable C. Fred Boshart.

MR. SCHRIVER: I move the reference of all reports of standing committees which involve resolutions or recommendations to the Committee on Resolutions.

MR. WADSWORTH: It would seem to me that if the reports of standing committees of this society are to receive only such treatment as that, it might be wise not to have so many standing committees. A standing committee is a standing committee and has some authority in this body. If all it is to do is to write out something and hand it over to another committee without any opportunity of presenting it in a formal, dignified and powerful manner, it would seem to me that standing committees might better cease to exist. It would also seem to me that at this time it places upon the Committee on Resolutions a large amount of work. Ordinarily, a member of a committee is eager to seize power and prestige, and I hope my colleagues on the Committee on Resolutions do not seriously disagree with me in this.

MR. SCHRIVER: I have felt all day when these reports were made they ought to have been immediately disposed of. I did not feel like injecting a statement of that kind, but we have had very able papers. We have had papers presented here that have involved much time, intelligent study and a large range of vision, papers which should have been considered and disposed of by themselves at the time they were presented, and I am prepared to move now that these several reports presented by the standing committees be adopted by this body, and I make that motion. That will relieve the Committee on Resolutions and it seems to me a proper disposition. Nothing has been said in any of these reports but that we can safely, prudently and wisely endorse. The committee that reported on taxation was very intelligent and very wise, but we had no time to discuss it, and we can not discuss it now, but I am prepared to endorse without any change whatever everything that has been stated in these several reports by the standing committees, and I move that we do now adopt them.

MR. TUTTLE: I rise to second that motion and in doing so I want to say that I think Mr. Wadsworth has presented arguments in favor of that course which are unanswerable. Furthermore, so far as my recollection goes there is nothing in these reports in the nature of a resolution which should properly go to the Committee on Resolutions. There are, however, certain recommendations which the chairmen of these several committees might well reduce to the form of resolutions, to bring the matter to a climax, and these resolutions might then go to the Committee on Resolutions, because these reports project themselves into the future to the extent of requiring some legislative or other action; and in order to bring that matter before this society I think the people who have presented those reports, or some member of the society, should formulate a resolution to go to the Committee on Resolutions. I second the motion to have these reports adopted.

MR. WADSWORTH: Mr. Chairman, let me make one suggestion as to what I think is the function of the Committee on Resolutions. It is a place where we can boil down committee reports, which have already been adopted by the society, into a set of resolutions sufficiently brief to warrant their publication. I think that the Committee on Resolutions should not be empowered to say "yes" or "no" to standing committees. We as a society should either approve or veto recommendations of the standing committees and the Committee on Resolutions taking the affirmative action of the society, should present it in digestible form.

The proposition now placed before us to adopt in a body on one vote all the reports of the standing committees, is of course quite an undertaking. For myself, I would feel much more comfortable if the motions were put separately. One suggestion as I understand it is for the Agricultural Society of the State of New York to endorse by formal action a proposition to regulate the price of agricultural products in this state. If that is to go forward in the blanket motion, I for one could not endorse it.

MR. SISSON: If the Chairman may be pardoned for speaking on this point, that is the very reason why I had not thought it wise to adopt these reports as embodying the completed thought

of this society, and I do not think it wise to do so. We want to secure every reform that is needed in the proper way.

Mr. Schriver's motion has been seconded, but in seconding it, Mr. Tuttle made this further recommendation.

MR. TUTTLE: What the Chair and Mr. Wadsworth have said in regard to that one particular feature is very just and very right, and if it is necessary to have an amendment to the motion, I will offer it as an amendment, because I do not wish in this omnibus way to commit the society as a whole to anything which it would not deliberately stand for. Let us amend by saying that any recommendation looking to legislative action, or any other recommendation that is revolutionary in any way, should be the subject of a resolution to be referred and further considered and later acted upon.

MR. SCHRIVER: The matter seems to me like this. These gentlemen have prepared their reports with great pains. We have taken absolutely no action. They stand now simply with the authority of these several committees. This society has not adopted them or rejected them, and it seems to me it is frittering away much time for nothing unless we do something. The purpose is to do something, but if we leave these reports undiscussed and unindorsed, then we have said nothing; we might as well have read the reports in the agricultural papers. I do not like this omnibus endorsement but I do want to give the dignity of this body to these reports somewhere or somehow, and if anyone will show us how we may dispose of them in an intelligent, dignified manner, then I will withdraw this motion for the time being.

MR. DILLON: I make a motion that the society accept the reports and direct the chairmen to formulate such recommendations as they may see fit and submit these recommendations to the Committee on Resolutions for consideration and recommendation to the society.

Motion carried.

MR. SISSON: Is there anything further?

MR. PALEN: May I be pardoned for going back a little before we adjourn. I feel that we are greatly honored in having with

us the President of the Housewives' League. The only answer made to the overtures by the Housewives' League is my friend Fraser's answer that we can not do it. I believe we can do it. The farmer must begin the study of an original package to go to the home and do away with this long line of middlemen. My good friend Tuttle's scheme for markets is an admirable one, but how long will it take to put it in action? We will all be dead. The farmers can do this and do it right away. Put up packages to go to the homes. We have somebody ready to distribute them for us. Nothing is produced on the farm that can not be put up in an original package to go to the home.

MR. SCHRIVER: I move a vote of thanks to Mrs. Heath who has so kindly come to us and so intelligently revealed to us the housewives' plan and purpose of success today. I move a vote of thanks to the lady for her presence and help.

Motion carried.

MR. SISSON: We will convene this evening in the Senate Chamber, which is opened to us by the courtesy of the authorities, where you will hear our President's annual message and a splendid talk by Honorable John N. Carlisle, State Commissioner of Highways, on "Market Roads for the Farmer," and another lecture which we had originally hoped would be delivered by Professor Charles H. Tuck of Cornell, who made a trip to Siberia this year. That lecture will be given by Dr. Griffis, a man of wide acquaintance with the Eastern lands, who will use a lantern to illustrate his lecture on "Lessons in Agriculture from the Far East." Our session will begin at 8 o'clock in the Senate Chamber.

The meeting was adjourned.

EVENING SESSION

PRESIDENT SISSON: We will open our evening session without any preliminary, and I will proceed to offer to you my report as your President.

ANNUAL ADDRESS OF THE PRESIDENT

GEORGE W. SISSON, JR.

To the Members of the New York State Agricultural Society:

I have the honor to present to you my second annual address as President of your society.

This day marks the seventy-fourth annual meeting of your society, and during this long period it has done notable work in the making of agricultural history in this state.

Founded at a time when agencies for research in matters pertaining to agriculture were almost unknown, and ways and means for the imparting of the acquired information for the practical benefit of the farmer were equally inadequate, the New York State Agricultural Society very naturally addressed itself to those problems of theory and practice that were most pressing in their day. With scant means and meager equipment it accomplished much, and did yeoman work in the improvement of agricultural practice in this state. This society is one of the oldest agricultural organizations in the United States, and in the character and scope of its work, is a monument of honor to the names of the men like Nott, its first President, Wadsworth, Allen, Morris, Geddes, Cornell, Lewis, Roberts and Pearson, to whose broad vision and faithful service much of its success must be attributed.

But however important the work of this society in the past, I can not but feel that during the past four years it has entered upon an era vastly greater in possibilities and big with promise of the successful solution of those broader economic and social problems of rural life in this state. This society might be properly termed "*An advisory council for rural betterment*" or "*An unattached influence for agricultural good*," more or less altruistic, absolutely non-political, controlled by no man or group of men, responsible to no institution, but responsible to all the farmers in the state.

Its agricultural character should be most jealously preserved. Its consideration of state-wide policies and problems should be characterized by perfect frankness, absolute unselfishness and in that broad spirit expected of men who presume to approach problems which vitally touch the life of the people and even the life of the nation itself. It is in this spirit that I would have you approach the questions that come before this convention.

THE PAST YEAR

Reviewing briefly the agricultural year just passed, the average farmer in New York State is more prosperous, more intelligent and more hopeful for the future than ever before. No longer is he plodding along at his daily task with his eyes on the ground and his wits asleep, but roused from his lethargy by the spirit of intelligence and helpful coöperation that touches him from all sides, he now does his work with his head in the air, with clear brain and broadened outlook that recognizes his true relation in the industrial democracy of our farm life.

New York State again maintains her position of supremacy among her sister states in production of staples like hay, potatoes and dairy products, in spite of the fact that her agriculture is doubtless the most diversified of any state in the Union. This diversification is an element of strength in agriculture, and is direct proof of greater intelligence and skill in farm operations.

Figures of production and the estimated value of farm products for 1913 in both state and nation run into figures almost incomprehensible. Ten billion dollars worth of products, a bumper year in spite of drouths and other setbacks, is the 1913 record of 6,000,000 American farms. In spite of this enormous production the cost of living still keeps up, and it may be interesting to quote a paragraph from the report of the Federal Department of Agriculture as follows: "However desirable increased production on farms may appear to be from the consumers' standpoint, it does not follow that such increased production would result in any increase in the cash income per farm, or per capita of farm population, or that prices paid by consumers would be any lower. Had the total population in 1913 equaled or exceeded the 1912 production, it seems probable that the cash income per farm would not have been greater and might have been less than in 1912; but it is extremely doubtful whether the cost to the consumer would have been any less, because retail prices are promptly raised on a prospect of underproduction, but are very slow to decline if there is overproduction. The long list of distributors and middlemen between the farmer and the consumer are in position to take advantage of the market, and to a certain extent control the market in both directions, because they are better organized to keep in-

formed of the crop and market conditions and to act more promptly than either farmers or consumers who are not organized, and as individuals are helpless."

In my address last year touching on this matter of increased crop production which had seemed to be the aim of most of our agricultural agencies so far, I made the statement that this phase of our business had absorbed too much of our attention and that we must now give careful study to the problem of distributing and marketing our products. In this connection it may be interesting to quote another paragraph from the report as follows: "The high prices paid by consumers indicate that there is plenty of room for lowering the cost of farm products to consumers, and at the same time largely increasing the cash income per farm without increasing farm production. This condition is undoubtedly a marketing problem which will have to be solved by the better organization of farmers and improved methods of marketing. When, as the result of such organization and improved methods, the price of farm products can be maintained at a higher level without increasing the cost to consumers, farmers will be justified in increasing the output of their farms with a fair prospect of realizing a reasonable profit on their investment of time, labor and money, which in the aggregate, is enormous."

It is interesting to note from this admirable report of Secretary of Agriculture Houston, that the Federal Department of Agriculture is preparing to take up vigorously the very problems on which this society has done pioneer work during the past two or three years. He suggests first: Marketing Surveys, Methods and Costs. Second: Transportation and Storage Problems. Third: City Marketing and Distribution. Fourth: Study and Promulgation of Market Grades and Standards. Fifth: Co-operative Production and Marketing Investigation.

We welcome this assistance and congratulate the country that the Department at Washington is no longer to concern itself mainly with problems of production, but is to address itself vigorously to these broader economic questions of rural life.

In this state the benefits of coöperative production and coöperative marketing have been so thoroughly considered and proven, that as a result of the initiative of this society, there has been

established in the Department of Agriculture a Bureau of Coöperation whose work is to assist in every legitimate way the spread of coöperative movements among the farmers of this state. We have had today a report from the chief of this bureau, also reports on the coöperative work of the New York State Grange, report from our own Committee on Coöperation and a most valuable report from the Chairman of the State Standing Committee on Coöperation, together with papers setting forth results actually accomplished by coöperative associations already in actual operation. The outlook for this work in the state is very encouraging. We must not expect, however, to be able to organize the farmers in every community. These coöperative organizations are generally founded on a special industry, in a somewhat restricted area so that the members may be personally acquainted. They must be based on true coöperative principles and become truly industrial democracies.

THE LABOR PROBLEM

One serious problem of the farmers in this state is that of farm labor. In the endeavor to assist in this matter, the Farm Labor Bureau, established in 1905, continues its efforts to place upon the farms of the state desirable immigrants and has met with fair success. The records show that for the fiscal year ending September 30, 1913, 3,532 laborers and 55 families were secured and furnished to the farmers of the state. Notwithstanding the fact that 359,720 more immigrants landed in this country than in the previous year and that 135,951 were classed as farm laborers, the bureau found great difficulty in securing suitable help to satisfy the demand for farm labor. Since the establishment of the bureau in 1905 about 36,000 farm laborers and 830 families have been distributed throughout the state.

Wages for farm labor have not materially advanced during the past year and have not kept pace with the increase of wages in other industries. This no doubt has had a great effect in inducing immigrants classed as farm laborers to secure employment in other lines of industry.

An agency which will help divert the stream of immigration to our farm lands is to be commended and it would seem that the Farm Labor Bureau should be encouraged to extend its work and activity and be given ample means and assistance to this end.

COUNTY FARM BUREAU

Another form of agriculture activity that is being rapidly extended is the County Farm Bureau work. The value of this work has been so thoroughly demonstrated, and the results have been so gratifying, that some twenty-one counties have now complete organizations and have been carrying on the work for periods from a few months up to two years. There is no question that the County Farm Agent, who is in close personal touch with the agricultural conditions of his locality, can better serve and advise the farmers of that section than can anyone else. He becomes the general advisor and center of information on local problems, and more than any other, is in position to assist in organizing co-operative movements and making them successful. The Farm Bureau movement is undoubtedly popular and is likely to grow, and properly so, to very large proportions. The most important question looking toward their future stability and usefulness is one of administration and responsibility.

A comprehensive presentation of this work will be given at our session tomorrow forenoon by Professor M. C. Burritt, the State Director of Farm Bureaus, to be followed by reports of actual field work by the county agents of a few counties where particularly successful results have been shown. I have been astonished to find many who are interested in our agriculture who know very little about this Farm Bureau work and the opportunities it affords for most practical, effective and rapid improvement of local agricultural conditions. I especially invite all such to our sessions in the assembly parlor tomorrow.

AGRICULTURAL EDUCATION

It is gratifying to note that there has been a marked increase in agricultural work in the public schools during the past year. The report from our efficient Committee on Agricultural Education, to be given tomorrow, will set forth in more detail the growth of this work. We anticipate a most valuable contribution to our ideas on this subject in the address to be given by Dr. Thomas E. Finegan on "How May Our Rural Schools be Improved?" at our session tomorrow afternoon. That session will be entirely given over to the topic of Agricultural Education, some new ideas

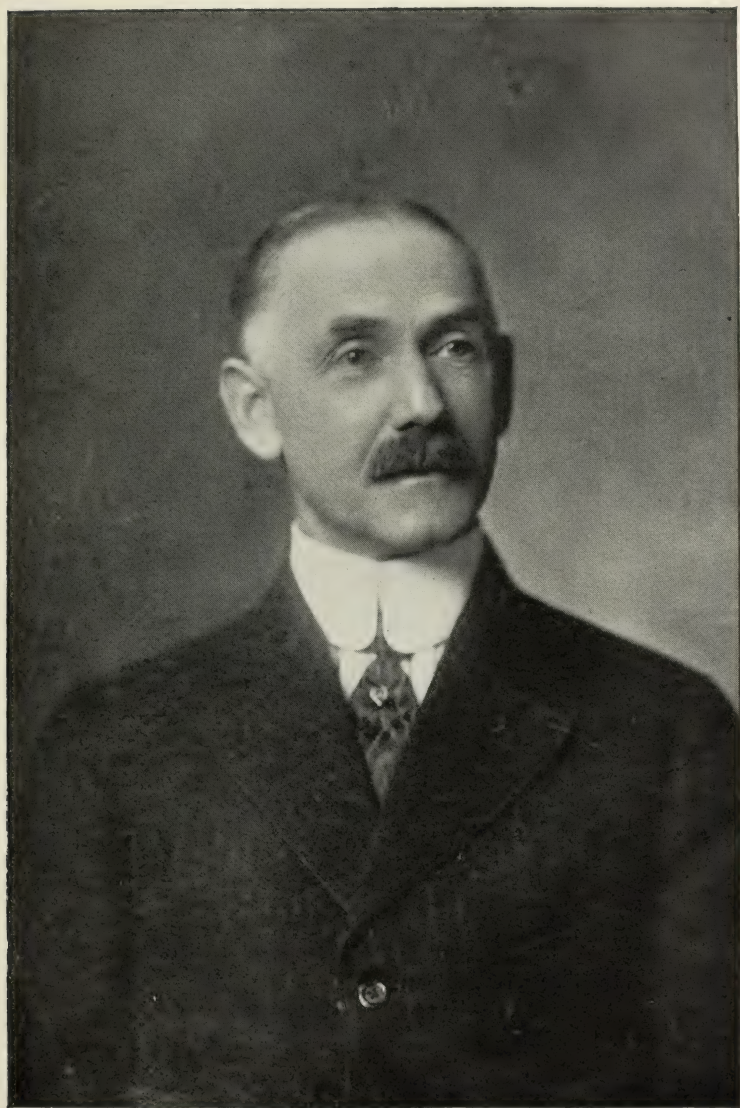


FIG. 239.—GEORGE W. SISSON, PRESIDENT OF THE NEW YORK STATE AGRICULTURAL SOCIETY, 1912, 1913.

are to be set forth in Dean Cook's address on "Agricultural Unification" and lively discussions are sure to follow. Your President is particularly interested in the work of the rural schools and is indeed pleased to note the attitude of the Department of Education toward them. If the result of the work in rural schools is to develop in country boys and girls proper estimates of the value of country life and if through their instruction in elementary agriculture, they are led to see that the business of farming has much in it of value to themselves and the state, any reasonable expenditure of money and effort in support of such instruction is amply justified.

PUBLICITY WORK

It is the business of the New York State Agricultural Society to help popularize New York State agriculture. Without funds of our own for publicity work in the way of advertising, we can each and every member be a publicity agent with confidence in our heart and the facts upon our lips, which need only to be told to the right people in the right way to secure a response and gratifying results. We wish to congratulate our Department of Agriculture on the excellent bulletins it has prepared and distributed setting forth the agricultural advantages of our state. With their attractive illustrations showing beautiful landscapes, rolling hills and fertile valleys, views of the diversified crops in which our state excels, and best of all, views showing her church and school advantages, together with a concise statement of facts as to her agricultural opportunities, they should prove an effective means of stemming the tide of westward movement not only, but of instilling confidence and hope in the breast of every New York State farmer. To quote a recent writer, the trouble with eastern agriculture, and that means New York State agriculture, is that we are "not up against a physical fact at all," but "are up against a psychological state; a spiritual depression, a darkened outlook. It is the soul of the man, not the soil we have to tackle." There is much in this thought; in fact, there lies in it just the difference between the success or failure of our rural life.

With one-half of New York State's nine millions population residing within the limits of Greater New York, and nearly 80

per cent. in cities of 25,000 and over, we can see to what small proportion of our population is confided the tilling of our farms and the maintenance of our rural civilization. This condition may be either a menace or a promise. In so far as the over-development of urban civilization has meant a decay in rural civilization a remedy must be sought and applied. Civilization is not measured by numbers or census reports, but rather by standards of intelligence, virtue, business ability and efficiency. So the problem becomes one of the reconstruction or building up of an equalizing rural civilization where as great intelligence and efficiency characterize our operations as those of an urban industry, and where the social, home and community life are on an equal or higher plane. New York State is not sick agriculturally speaking, but without doubt some of the germs of that rural decay that saps the life of nations and threatens their very existence have found lodgment in her system. The cure is easy to take and is to be found in the successful working out of the very problems which your society brings to you for discussion and consideration at this meeting.

It is proper here to note the increasing interest in New York farm lands of investors from the West. There are two classes of these. One class consists of those who, having disposed of high priced western land at a profit, are now wisely investing in high class improved farms mostly in Central New York and the fruit sections, where with every advantage of pleasant environment, good soil and markets, they are establishing permanent farm homes.

This movement is attaining considerable proportions and is bound to increase, but we have no accurate statistics of its extent.

The other class is one of desirable hard working, Danish, Swedish, Norwegian and German farmers, who, with limited means have purchased farms in various counties of the state through the initiative and publicity work of the Bureau of Farm Lands of our State Department of Agriculture.

These western farmers were surprised to learn that New York offers greater opportunities to them than probably any other state, and every little community where a few of them have settled and been successful, has become a center of influence in bringing more of their fellow countrymen to our lands.

REPORTS AND WORK OF STANDING COMMITTEES

Our permanent committees after careful study of the particular matters in charge of each again bring us valuable reports and suggestions for genuine constructive work in improving agricultural conditions in the state. Several of these committees have reported today and your President wishes to compliment the members of each committee and congratulate the society that men can be found who will devote the time and give the careful study and consideration that has evidently been brought to bear upon these problems. The effectiveness of our society is largely in the hands of these committees, and whatever we may accomplish in the way of securing remedial or constructive legislation has been largely through their careful, wise and unselfish consideration of questions, followed by recommendations based on proven facts. In this line of work will be found our best opportunity for real service to the state. Our society commands the respect and confidence of the rank and file of our farmers not only, but of the state government, which welcomes our assistance and is quick to avail itself of our suggestions.

Preparation for such a convention as this involves a vast amount of labor and some considerable expense. It would not be possible for us to hold such a convention without the assistance and coöperation of the State Department of Agriculture and the state government at Albany. As stated before, this society is unattached to any other agency, has no funds and is engaged in a work which no other organization can do. While I believe that the character of the work that this society is doing and the position it occupies, in what might be called an advisory capacity toward other agricultural agencies, might justify state aid for its work under proper restriction and regulation, I am not sure that this would not detract in a measure from the independence of our position and the value of our work.

OUR TOPIC AND PROGRAM

At our meeting last year our general topic was "Farm Finance and Rural Credits." Our pioneer work in that conference while considered a little ahead of the time by some of our members, served to clear the atmosphere of many hazy notions and paved the

way for a more definite and intelligent study of the matter at this meeting looking to its practical application to New York State conditions. Since our meeting a year ago the United States Commission appointed by President Wilson, together with the American Commission, consisting of delegates from different states and some provinces of Canada, have visited Europe and made exhaustive studies of coöperative land mortgage banks, coöperative rural credit unions and similar institutions that devote their attention to the promotion of agriculture. The reports of these commissions are now available and constitute a valuable contribution to the literature on the topic. One of our members, Mr. R. B. Van Cortlandt, was a member of the New York State Commission, and he brings us a valuable paper on "Agricultural Credit." Our Committee on Taxation and Banking assumes a most important place in our organization by reason of the very nature of these pressing questions, and their report on the topic may be received in full confidence that it brings us their best thought and conservative findings. No one of our members has devoted more time or given more unselfish service in the investigation of this topic than the Chairman of the State Standing Committee on Coöperation, Mr. John J. Dillon, the report of whose committee constitutes perhaps the most practical suggestions we have had. One phase of coöperative credit which has been in operation in our state for years and which recent study seems to indicate could be adapted to our rural credit problems is that of the building and loan association. This matter is presented in two valuable papers reciting the actual working of such associations.

It is to be hoped that out of this mass of information there may be sifted that which is vital and effective, and which may be applied with success to our own state problems.

We are to be congratulated on having the intelligent sympathy and interest of Governor Glynn, who has given much study to these matters and who honors us by his presence and an address tomorrow evening in the assembly chamber.

The coöperative features of our program deserve more than the passing comment I have given them. We have been talking and planning coöperative work for the farmers forgetting that the household needed equal attention. For this reason we are happy

to have the address by Mrs. Julian Heath, President of the National Housewives League on "How Housewives Can Coöperate."

Sir Horace Plunkett has defined coöperation as "organized self help," and in all our attempts to further the interests of our rural districts we should keep this definition clearly before us.

One of the greatest problems of the farmer and a large factor in the cost of produce to the consumer is that of transportation. How this may be helped by "Better Market Roads for the Farmer" will be told us by Hon. John N. Carlisle, State Commissioner of Highways.

While studying our problems it is sometimes well to turn our eyes toward other fields where conditions are totally different. It gives us a wider horizon, may teach us valuable lessons and possibly make us more content with what we have. The illustrated lecture by Dr. Griffis this evening showing us something of agriculture in the far East will doubtless be most interesting.

No one of our committees has broader scope or greater possibilities for good than the Committee on the Development of Agricultural Resources. Its report to be given tomorrow forenoon by the chairman, James W. Wadsworth, Jr., is sure to be characterized by valuable and definite suggestions.

The great interest manifested in the topic of drainage as discussed in our meeting last year resulted in the appointment of a Committee on Drainage, whose report will be made tomorrow forenoon by Richard W. Sherman, Chief Engineer of the State Conservation Commission. This report will be discussed by Professor Fippin of Cornell, Professor Robb, Drainage Engineer in the State Department of Agriculture and Mr. Jas. A. D. S. Findlay.

The thanks of our society are due to Honorable Calvin J. Huson, the Commissioner of Agriculture, who has not only through his department given us every assistance in making this meeting a success, but who will preside at our meeting in the assembly chamber and address us tomorrow evening. Chancellor James R. Day of Syracuse University, a strong speaker, will also address us at that time.

In closing I wish to voice the appreciation by our society of

the interest and sympathy manifested by men of large affairs in business and government in these matters that promise to benefit agriculture. This sympathetic and intelligent interest is amply justified in the fact that agricultural development is primarily a great public movement and must be viewed from considerations of the general welfare. A genuine forward movement for rural betterment has had its beginning in this state, is now gathering volume and will soon attain large proportions. Whatever share our society may have had in their beneficent and patriotic work has been freely and cheerfully given and our only desire is to be of still greater usefulness.

PRESIDENT SISSON: In my address I alluded briefly to the matter of transportation. I wish to say in introducing the next speaker, that from personal acquaintance I know that his every desire and intention is to do all that can be done for the transportation problems of New York State. I know his broad intelligence; I know his capabilities; I know his fearless honesty, and whatever we may have thought of highway work in the past — and this is no political speech and no political meeting — that we have a member of our society who is in charge of this work is a matter of congratulation to us, and I have the honor and pleasure of presenting to you the Honorable John N. Carlisle, of Watertown, State Commissioner of Highways.

MARKET ROADS FOR THE FARMERS

HONORABLE JOHN N. CARLISLE

There are approximately 80,000 miles of state, county, and town highways in the State of New York. Under the present highway law they are divided into four classes: State highways, which are laid out and designated by the legislature, amounting to 3,514 miles; county highways, laid out and designated by boards of supervisors of counties and approved by the State Department of Highways, amounting to 8,953 miles; county roads, which may be designated and improved by counties as a county road system, and town highways, comprising the balance of the roads in New York State, amounting to about 68,000 miles.

While it is contended at times that the building of the state

and county highways is solely for the purpose of benefiting the owners of automobiles, yet this contention is not fair as these state and county highways are among the most important in the state, are used by farmers as market roads, and upon these roads are located some of the largest and best farms in the state, so that every road within the state can fairly be designated as a market road.

The state and county highways are constructed from funds derived from the sale of bonds by the state, with additions thereto by the counties in case they are county highways, and when this system of approximately 12,000 miles is finished there will be constructed the main arteries of traffic through each of the counties of the state.

The law, however, contemplates additional radial roads connecting with the state and county roads and which will reach into every section, in every county.

There are two ways in which these radial roads are provided for in the highway law; first, a county road system which can be laid out under general or special laws by the different boards of supervisors in the different counties, to be built and paid for by the counties as a whole. In Franklin county, noticeably, this county road system has been adopted. The county has bonded itself for \$500,000 and is now engaged in constructing, under the direction of the county superintendent, a large mileage of county roads at a cost of about \$3,000 to \$4,000 per mile.

This has resulted in the building of types of roads that are very satisfactory to the people of that locality, and which take care of the traffic conditions that prevail therein. A number of other counties are now adopting this system and are studying the questions relating to county roads, and in my opinion this system in time will be generally adopted throughout the state. The different counties will build the next important highways after the state and county highways by direct county appropriations, through direct taxation, or bond issues by counties. Particularly where the mileage in counties is very large this probably is the best system to adopt, and each county of course will have to study its own needs financially and otherwise in laying out and carrying to completion a county road system.

This leaves what are known as the "town highways," which are the ordinary town roads in the different counties of the state, and for a number of years past the State Department of Highways has had, through its Town Bureau of Highways, supervision over the construction and improvement of these roads.

Under the present law this duty is now imposed upon the Third Deputy Commissioner of Highways, and he has a force of district supervisors whose duty it is to visit the different counties of the state and confer with the county superintendents and the town superintendents in regard to the proper methods of maintaining and building town highways.

The mileage under the charge of this bureau is so large, approximately 68,000 miles, that any general improvement in conditions upon so large a mileage can not help but be of the utmost value to the state. Our department is constantly trying to induce the town superintendents to build permanent stone or gravel roads, to install concrete bridges and culverts, and a very noticeable improvement has been made in the state in the past few years in this direction. The state itself directly assists the towns in this work by giving to them a certain amount of money proportioned to that raised by the towns, and last year the appropriations made by the state which were paid direct to supervisors for use on town highways amounted to \$1,721,695.54. This year under the statute the amount will run to nearly \$1,815,919.08.

New York State is the only state in the union which is giving direct financial aid toward the construction of all types of roads. With a system providing for through direct state routes, connecting up with a county system covering the most important highways in each county, with a county road system taking up the next important roads, and with direct state aid paid to the towns in aid of the town highways, we can confidently expect that within a comparatively short time every road in the state that is of any importance will be improved and in condition for use during all months of the year. It is very important that the radial roads and the town roads should be improved because the determination as to the value of any road depends upon its weakest link, and if one section of a road is in poor condition and will only permit the hauling of a small amount of farm produce, this determines

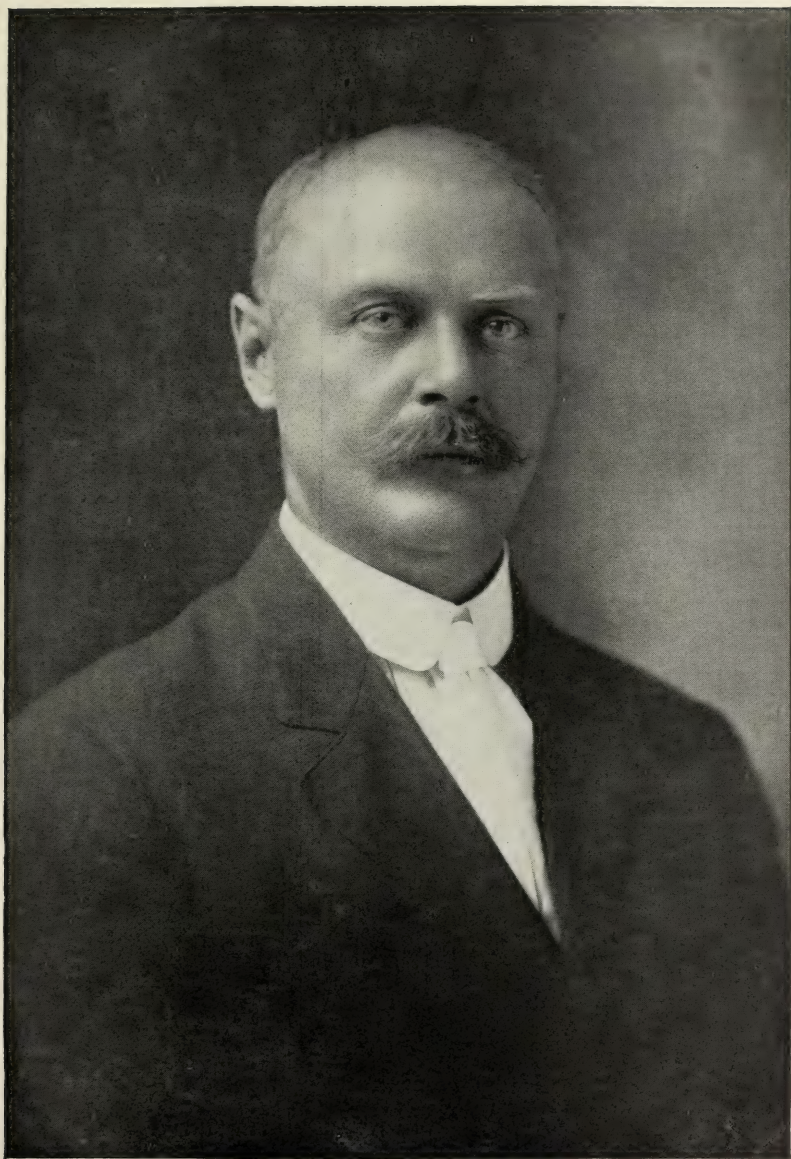


FIG. 240.— JOHN N. CARLISLE, STATE COMMISSIONER OF HIGHWAYS.

the load for the farmer upon the entire system over which he wishes to travel.

The great trouble today with the road situation in New York State is the problem as to just what types of roads should be constructed to meet the demands of the times. Experience has demonstrated that as soon as a state or county highway is opened there are immediately organized bus lines to carry not only passengers but freight, and that as the roads are improved the number of automobiles and motor vehicles immediately increases in that locality. During the year 1913 the Secretary of State issued more than 138,000 automobile licenses, covering all types of motor vehicles, and this number is bound to increase rapidly as our roads are completed and opened in different sections of the state.

The history of the past shows that immediately upon the completion of good roads motor vehicles are put in use to haul the farmers' produce to market, noticeably milk products to different stations and factories, and fruit and other products to the shipping centers. There is every indication that with the decrease in the cost of automobiles and the making of a cheaper motor vehicle, we are confronted with the proposition that in the very near future practically the greater part of the farm traffic will be carried in motor vehicles and that the horse-drawn vehicle will gradually disappear. This means that we must build more permanent types of roads, particularly around the important centers of traffic, and even in rural districts roads must be constructed that will be able to withstand this motor vehicle traffic. The motor vehicle today is usurping the province formerly provided for by street railroads, and there has been a noticeable decrease in the construction of new mileage of street railroads, due in my opinion largely to the increase of motor vehicles and their ability to handle the traffic of localities.

The future for good market roads in New York State, in my opinion, is very bright. Within a few years every section of the state will be provided with good roads, which will take the farmer out of the mud at all seasons of the year, will enable him to cover distances formerly undreamed of, will greatly extend his market, secure for him better prices, enable him and his family to enjoy

the advantages of the larger centers of population, and will tend to keep the boys and girls on the farm.

To attain what we all desire it is necessary that everyone interested in the movement for good roads should give time and attention toward helping solve the problems. One of the most important factors is the selection of town superintendents of highways who are competent and qualified to properly expend the moneys in their localities. At present these men are elected at town elections and frequent changes are thereby made. The law ought to be changed so as to provide that these town superintendents should be appointed from civil service lists the same as the county superintendents are now appointed by the boards of supervisors, and they should be retained in the service long enough to properly train them in their work.

New York State must lead the world in highway construction. Its people have voted to expend \$100,000,000, the largest amount of money available in the world for this purpose, and in this twentieth century, with the engineering science now at our command, the problem can and must be solved. The eyes of the entire country are focused upon New York to lead the way, and the Empire State of the Union can not and must not subject itself to criticism because of failure to meet the expectations of the people.

PRESIDENT SISSON: I am sure you all appreciate the wisdom of our having extended the invitation to Major Carlisle to address us on this topic. Such determination as he has evinced is sure to be effective in this work.

We had expected to have with us this evening one of our own members who had the privilege of going abroad this past season, and from the postal cards I received from him when he was on the Steppes of Siberia, I thought that a talk from Professor Charles Tuck on that trip, illustrated by views, would be very interesting indeed. But unfortunately Mr. Tuck has found it impossible to be here. We are peculiarly favored, however, in that we have with us a gentleman whose experience and residence in the far East fits him, perhaps better than Professor Tuck, to bring this matter before us — Dr. W. E. Griffis of Ithaca, who was the first white man in the interior of Japan, and who founded

there the first school on the American system, the educational pioneer of modern Japan. Dr. Griffis will talk to us about agriculture in the far East.

SOME LESSONS FROM THE AGRICULTURE OF JAPAN

* WILLIAM ELLIOT GRIFFIS, D.D.

The speaker, who took the place of Professor Chas. H. Tuck, of Cornell University, who was unavoidably detained, first gave his credentials as a lecturer on Japan. In 1850 he saw the launching of "The Susquehanna," U. S. S. S., which became the flagship of Commodore M. C. Perry. In 1860 he met the members of the first Japanese embassy to America. In 1866 he taught at New Brunswick, N. J., the first students from Japan. In 1870, as the first foreign resident in the far interior of Japan, he organized the initial schools, on the American principle, in the Empire of the Mikado.

The Japanese Empire, by the census of December 31, 1908, has a population of 65,682,244, with an area of 260,753 square miles, or 64 to the square mile, and coast lines aggregating 7,423 miles. The Empire now includes Old Japan proper, Yezo, half of Saghalin, Formosa and Korea. There is enough land to occupy every able-bodied man for a century to come, in reclamation and intensive farming.

In this address, which was illustrated by the stereopticon and with seventy-five lantern slides, the speaker's point of view was upon that of Japan proper, or the three large islands of Hondo, Shikoku and Kiushiu, in which dwell 50,000,000 people, and in which most of the great events of Japanese history have taken place.

Japan consists of a chain of islands rising out of the ocean, and is geologically quite young, so that earthquakes are quite frequent and active volcanoes numerous. Hence, not more than one-twelfth of the surface can be cultivated, most of the land being too steep. The forests occupy a very large area, and the land is ever green, for it has been law and custom, from ancient times, that when one tree is cut down two must be planted. There are

* Author of "The Mikado's Empire," etc.

few plains or long rivers, and the valleys are the chief places of fertility, and there the population is concentrated. Rice is the main crop and must be planted under water. Hence, wherever one sees a stream of water descending from the heights he sees also terraces, artificially made, over which water flows. There are no fences, but the small fields are divided by mud partitions from one foot to four feet in height. The average size of a field is about three-fourths of an acre and there are millions of small farms.

After the revolution of 1868, by which the feudal system was destroyed, the soil came into the possession of its actual tillers and the chief dependence for revenue today is the land tax. Ricé land is worth, roughly speaking, about five times ordinary land. The houses of the farmers rarely stand alone, but are ranged along the high road, so that the arable soil may not be shaded. On the unirrigated uplands and hillsides the other crops — millet, wheat, oats, rye, buckwheat, potatoes, corn, cotton, tea, indigo, tobacco and the garden vegetables — grow, and wax trees flourish.

In general, it may be said that by nature the Japanese archipelago is fitted rather for the support of about ten millions of people, yet the Japanese by diligence, intelligence and intensive farming feed a population of 50,000,000. One can not say of them, as of the Chinese, that they have been “farmers for forty centuries,” for the Japanese, as a nation, are not really older than the English. There were many tribes on the islands, but no nation, in the strictest sense of the term, until the twelfth century. This, the writer has, he thinks, demonstrated in his book, entitled “The Japanese Nation in Evolution” — for these people are to be yet much greater than at present and are to reach a grade of civilization much higher than at present attained.

Agriculture, according to any system, did not, probably, begin until about the beginning of the Christian era. Then, a band of invaders from the continent, who were agriculturists, displaced, or gradually subdued and amalgamated with the aborigines, who were hunters and fishermen only. The Japanese are a mixed people made up of four ethnic stocks, the Aryan, or “white” race; the Malay; the Semitic and the Tartar. Their history shows them to be the equals, in mental and physical ability, in initiative,

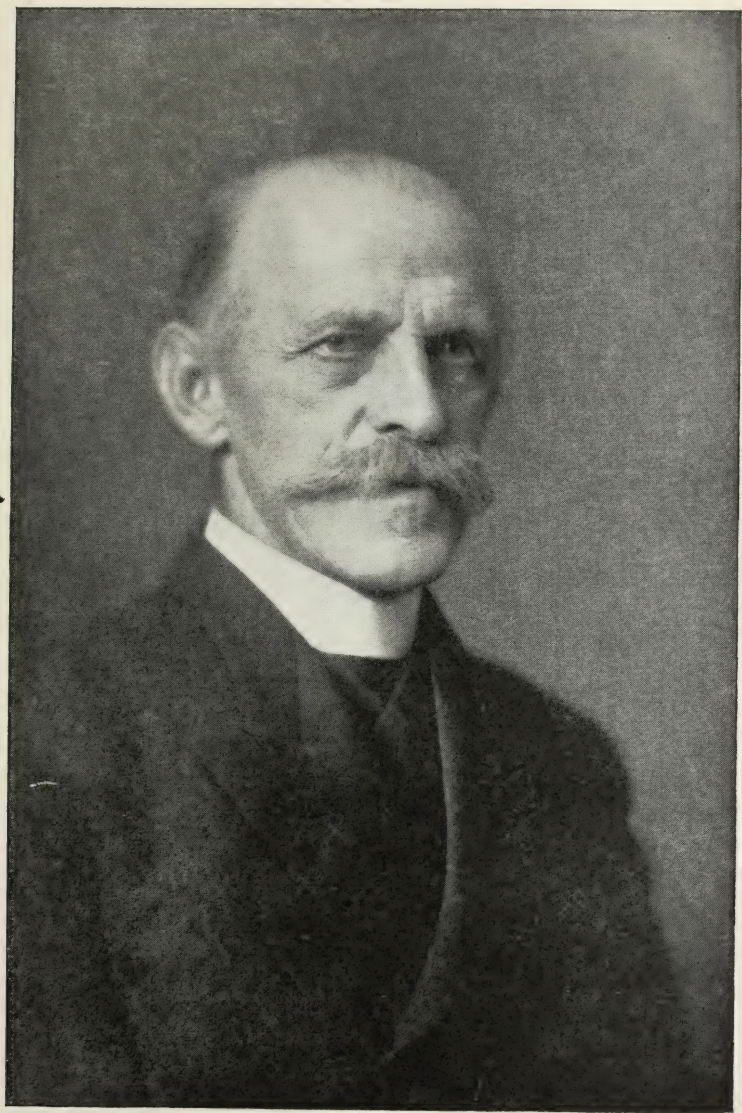


FIG. 241.—DR. W. E. GRIFFIS, ITHACA, N. Y.

in art, in the crafts and in agriculture, of the so-called "white" men, usually associated with the term, "Caucasian" or "European"—which words, in the true science of ethnology, have now little meaning.

These views were illustrated by pictures thrown on the screen showing typical landscapes, processes, crops, ethnic peculiarities and local products. The conclusions of Dr. Griffis are that the Japanese, by intelligent industry, by borrowing, during the ages, the ideals and improvements within their ken, from the continent and neighboring countries, had solved the problems of food and material for fibre, textiles, clothing, etc., enjoyable work, beauty, pleasure, seed stock and maintenance of fertility fairly well.

In the old days of peace population increased faster than food, say, by 1700 A. D., and desolating famines visited the land. In these modern days, with steamers, railways and improved roads, only local scarcity is likely to occur. Yet rice, the chief article of food, is, as a cereal crop, most precarious, depending most on weather and regular seasons.

The speaker argued that a more diversified diet and agricultural industry, with exchange of seeds, ideas and processes, with Europe and America, would add great improvement and assist in the solution of a problem which in Japan as in America becomes increasingly complex and vital. In like manner, the study of Japanese and other phases of Oriental agriculture would be of vast benefit to American farmers. Whatever criticism we may make on the Oriental, he has kept his land fertile, after ages of farming. He understands the rotation of crops. He conscientiously returns to the soil the elements he takes out. He loves flowers and knows how to cultivate them. All his poetry, literature and language of common life show that he honors the ground out of which he and his ancestors sprang. He feels it to be a sacred duty to preserve the fertility bestowed by the gods of heaven. Perhaps in this reverence for the soil and honor bestowed upon its cultivators, we may imitate him. Even in the days of feudalism the farmer ranked after the nobles, the equal of the gentleman and the superior of the trader and artisan. An abiding friendship between Japan and the United States will tend to elevate the farmers of both countries, even the "Banzai," or ten thousand generations.

MR. SCHRIVER: I desire to move a vote of thanks to the gentleman for his very instructive and interesting address.

Motion carried:

PRESIDENT SISSON: In closing, let me call your attention to the sessions to-morrow: In the forenoon our business session and reports to important committees; in the afternoon a whole session devoted to agricultural education, by our best men in the state.

We now stand adjourned.

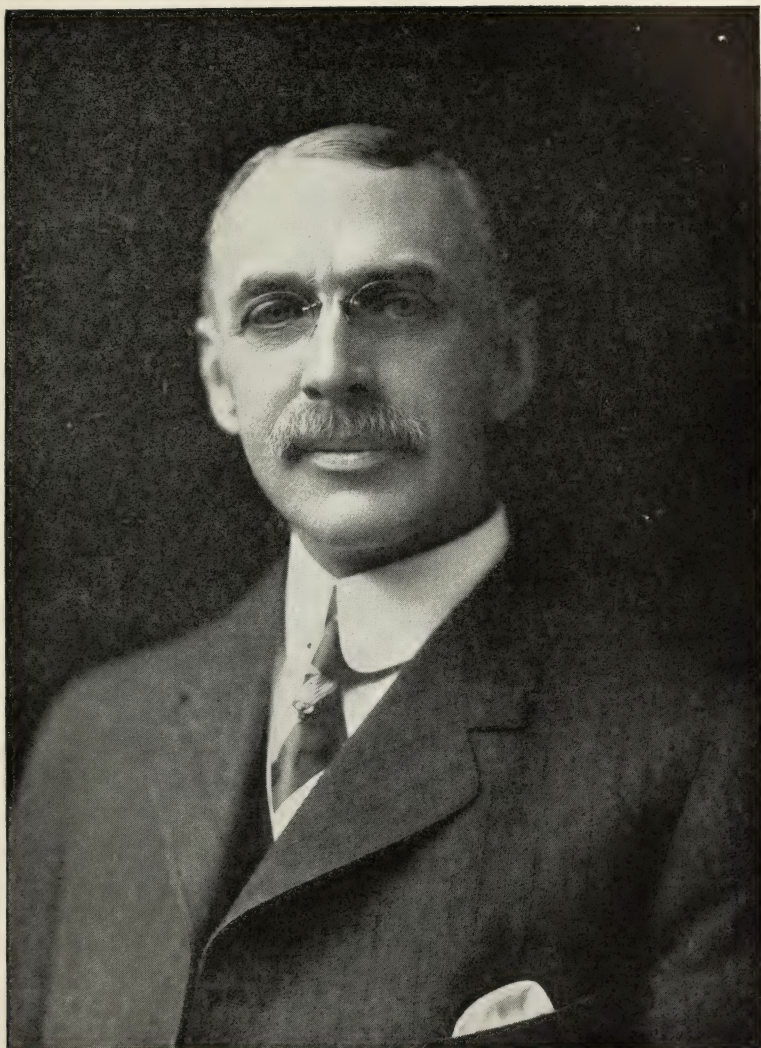


FIG. 242.— ALBERT E. BROWN, SECRETARY.

WEDNESDAY, JANUARY 21

MORNING SESSION

THE PRESIDENT: First upon our program is the report of our Secretary, Mr. Albert E. Brown, of Syracuse.

This is our business session, as you know.

SECRETARY'S REPORT

ALBERT E. BROWN

The report of the secretary is necessarily a short one, because this association has not held any meetings during the year except the meetings of the different standing committees. They have held many meetings and their reports that have been read here attest that fact.

I took some pains a short time ago to look over one of our old printed lists of life members of this association. In 1899, just a year before the state took over the State Fair part of the Agricultural Society's business, there were 1,960 life members of this association. Last week I went over the list of members that has been revised every year, and carefully revised this last year, and there are 840 living life members. That shows what about fifteen years does for the members of our association.

There are a great many annual members who have joined the association each year. The Treasurer, Mr. Winters, has these statistics.

There was another thing that was of some interest to me, of the 844 present living life members of this association, there were 390 attended the State Fair last fall. They are obliged to pay admission to the State Fair, but it is refunded if they call for it.

Out of the 844 living life members, there are 34 now living out of the state.

That, gentlemen, completes my report.

MR. SISSON: What will you do with the report of the Secretary?

Motion carried that it be accepted.

MR. SISSON: We will now listen to the report of our Treasurer, Mr. Harry B. Winters, of Albany.

TREASURER'S REPORT

HARRY B. WINTERS

Receipts

Balance on hand January 11, 1913...	\$272 72	
Dues 95 annual members....	\$95 00	
Dues 10 life members.....	100 00	
	<hr/>	195 00
Contributions	2 00	
Harvie Jordan — Dept. check.....	80 24	
E. W. Kemmerer — Dept. check.....	22 75	
	<hr/>	
Total		\$572 71

Disbursements

The Ten Eyck Co., hotel bills.....	\$33 05	
Joseph P. Hogan, show cards.....	6 25	
Bastain Bros., badges.....	36 30	
Brandow Printing Co., printing.....	66 50	
C. H. Harding, printing.....	18 00	
Harvie Jordan, expenses.....	73 24	
Western Union Telegraph Co.....	1 30	
Theo. C. Marceau — photograph.....	2 50	
E. W. Kemmerer, expenses.....	18 25	
Charles A. Conant, expenses.....	13 10	
Jos. J. Judd, publicity work.....	15 00	
Addressing envelopes	9 00	
	<hr/>	
Total		292 49
		<hr/>
Balance on hand January 21, 1914.....		\$280 22
		<hr/>

I would respectfully ask the appointment of an auditing committee to go over these accounts before the meeting closes.

Another thing I would like to mention here is that the treasurer of your society is getting a good many letters from the old life



FIG. 243.—HARRY B. WINTERS, TREASURER.

members who feel that they are not justly treated in regard to admissions to the State Fair. If I understand the matter correctly, a life member can pay his admission to the State Fair, go to the treasurer's office and get his money refunded. I do not think that this is treating those old life members in the best possible manner. I have here a copy of the Laws of 1900, chapter 346, which reads:

"It shall furnish to each person who on the seventeenth day of January, nineteen hundred, was a life member of the State Agricultural Society, a free admission to the fair ground during the fair of each year during the life of such member."

I would like to move that this society ask the State Fair Commission that it give each one of these old life members up to January 17, 1900, an admission ticket to the State Fair. It seems to me that this is the only courteous way of treating them. It does not apply to new members who are joining at the present time.

PRESIDENT SISSON: You have heard the report of the Treasurer. What will you do with the financial report?

Motion that report be accepted was carried.

MR. SISSON: I will appoint the auditing committee later.

What will you do with the motion made by the Treasurer relative to admission tickets to the State Fair for the old life members of the society?

MR. SCHRIVER: I desire to second that. I think we ought to honor these men by giving them tickets of admission without any circumlocution.

MR. SISSON: It is moved and seconded that a request be made of the New York State Fair Commission that it furnish tickets of free admission to such life members of the New York State Agricultural Society as were listed up to January 17, 1900, and as Mr. Schriver has put it, without circumlocution.

Motion carried.

MR. BROWN: As secretary of this society and secretary and treasurer of the State Fair, I of course have the good of both associations at heart. Of course the law states that we must furnish free admission, and up to three years ago we mailed to every person a ticket of admission to the fair, good for the week. Now, we know that half of these tickets went to people who were

not old life members. Perhaps a life member attended one day and gave his ticket to someone for the rest of the week, and perhaps he never got the ticket because of wrong post office address, but it was used by somebody. We knew that by the way the tickets came back. Two years ago we went into the coin cash admission system, where you had to drop a 50-cent piece in the slot, and there were no tickets of any kind printed. Then, we were going to give to each life member who presented himself at the office, his money back. Of course, that was embarrassing, but it seemed to be the only way out of it. Those life members were given their money gladly, as soon as they came in, and every day if they came after it. They have not since that time printed any tickets to the fair. Whether they will again or not, I do not know.

MR. SISSON: The next order of business on our program is miscellaneous business. If there is anything that may properly come before us under that heading, we will receive it now. If not, reports of special committees. While we are speaking of special committees I will name as Auditing Committee to go over Mr. Winters' accounts, at his request, Mr. Richard T. Wainwright and Mr. C. Fred Boshart.

MR. FRASER: Under miscellaneous business, I should like to direct attention to the McKellar 90-day cold storage bill now receiving attention from the federal authorities. It affects not only the fruit interests but the beef interests as well. It affects all interests concerning the farmer. Under it they propose that nothing shall be held longer than 90 days. You gather apples in October and they must be disposed of in January. I think this resolution will be in order: That we request all our members from this state to oppose any such measure as detrimental to the agricultural interests of New York State. I offer that as a resolution.

MR. SISSON: You have heard the suggested resolution by Mr. Fraser. Under our ruling that will go to the Resolution Committee.

MR. WILSON: There is another bill that requires a certain class of products not to go into cold storage after being shipped. For instance, we might have apples in cold storage in western New York and they be taken out to go to New York City. There they

might strike a bad market, and they could not be put in cold storage for even a week. I think this is just as bad as the other bill.

MR. SISSON: Mr. Wilson, will you please see that the proper mention of that is turned over to the Resolution Committee?

MR. SCHRIVER: We heard with a great deal of interest, and I think with profit, the address of John N. Carlisle last night in regard to improved roads in the state of New York. He impressed us with the fact that he had gripped the situation and that he had come into the inheritance of a very embarrassing situation. He suggested that where there was a legal provision for 12,000 miles of road, we ought in reality to have only 6,000 miles. I think we ought to recognize him, his work and his difficulties, and do what we can to help him in the solution of the difficulties. I move an unqualified endorsement of Mr. Carlisle and his proposition in regard to the improvement of the roads of the state of New York.

Seconded by Mr. Boshart.

MR. FRASER: I think, Mr. President, if you had gone to a number of farmers in our section when he issued his order that no threshing machines should move over the roads in October, you probably would not carry that endorsement very far. The question should be taken up to know what restrictions are to be put on those roads. I think we would like to know something more as to what the idea is on that problem. I ask for information.

MR. CATCHPOLE: Mr. President, I think if one had been over some of the roads of Orleans county during the months of August and September and seen the damage these machines had done, they would reverse their opinion.

MR. FRASER: Those roads are built for use. If the roads will not stand the traffic they have been carrying, it is up to the road commissioner to make roads that will.

MR. SISSON: To continue this, we would only get into a debate among ourselves as to different types of roads, which would be no use. I know what lies behind the motion of Mr. Schriver. We all heard Mr. Carlisle's plain, frank statement last night of his desire to do for us the best that can be done to make the roads of the Empire State the best of any state in the union. If there

is to be any discussion, Mr. Schriver, we know what feeling has gone forth, and it may be best not to crowd a sweeping resolution of road commendation, if these little things come up. We certainly give him our thanks for the address of last evening.

MR. GILES: Mr. President, I think I feel the situation as keenly as does the mover of the motion, and I think there is some pertinence in the remarks of Mr. Fraser. I am not authorized to speak for Mr. Carlisle, but I had some conversation with him upon the very subject that has been breached and he enlightened me and possibly this association would be enlightened from the fact that an act of the Legislature directed the road commissioner to prepare just that kind of a statement. He said, "We have made the ruling now and we are subject to it. We have had a good many statements filed with us and we propose to revise it in the interest of all."

He said: "If you will place intelligently before the Commission a solution of that particular question of the lugs on threshing engines, it will be adjusted to your satisfaction." I was not authorized by Mr. Carlisle to say this, it was a private conversation, but I am entirely satisfied that his position is in the interest of all of us and therefore we can support Mr. Schriver's motion.

MR. TUTTLE: This is a resolution, which under the present ruling should be referred to the Resolutions Committee.

MR. SISSON: I would not rule that way. This is a commendation of what we believe to be good work.

Motion carried.

MR. SISSON: We will now proceed to the election of officers.

MR. WILSON: Your Committee on Nominations wishes to present the following report:

OFFICERS FOR 1914

President

Dr. Liberty Hyde Bailey, Ithaca

Vice-Presidents

First District..... John J. Dillon, New York

Second District..... Ezra A. Tuttle, Eastport

Third District..... Gilbert M. Tucker, Albany

Fourth District..... C. Fred Boshart, Lowville
Fifth District..... Wing R. Smith, Syracuse
Sixth District..... Samuel Fraser, Geneseo
Seventh District..... James W. Wadsworth, Jr., Mt. Morris
Eighth District..... F. N. Godfrey, Olean.
Ninth District..... Dr. G. H. Davison, Millbrook

Secretary

A. E. Brown, Batavia

Treasurer

Harry B. Winters, Albany

Executive Committee

A. Denniston, Washingtonville
J. A. D. S. Findlay, Salisbury Mills
William Church Osborn, New York
Thos. E. Finegan, Albany
Franklin D. Roosevelt, Poughkeepsie
Edward van Alstyne, Kinderhook
George W. Sisson, Jr., Potsdam
T. B. Wilson, Hall
F. W. Sessions, Utica

I move the adoption of the report.

Motion carried.

MR. SISSON: It will be necessary for a further motion that the secretary of this meeting be instructed to cast a ballot for the parties named, if that is your desire.

MR. WHITE: I make that motion, that the Secretary be instructed to cast one ballot for the different officers for the offices as named.

Motion carried and ballot cast by Secretary.

MR. SISSON: By virtue of the authority of the constitution, I declare the gentlemen elected.

MR. SISSON: This closes our business meeting. The next matter on the program is the Report of our Committee on Development of Agricultural Resources, by the Chairman James W. Wadsworth, Jr.

**REPORT OF COMMITTEE ON DEVELOPMENT OF AGRICULTURAL
RESOURCES****JAMES W. WADSWORTH, JR.**

In introducing this report of your Committee on Development of Agricultural Resources, it might be permissible for me to say that the committee has had considerable difficulty in getting together. Those of our colleagues who have joined with me in this report have felt that we have labored under difficulties, as it has never yet been determined just what the jurisdiction of the Committee on Development of Agricultural Resources was. The officers of the society have very kindly told us when we were puzzled as to what problems we should attack, that we could consider ourselves as a clearing house for the suggestions of other committees and that we might feel at liberty to take up matters which other committees have not taken up and lay these matters before the society as to whether or not from a technical viewpoint these matters could properly be included under the subject of Development of Agricultural Resources. So we have prepared a report which contains two recommendations; and I feel that I ought to make this preliminary explanation, because these two recommendations, you will see, are at the opposite poles, so to speak, as far as having any relation to each other is concerned.

Your committee is convinced that an intelligent and effective development of agriculture must be founded upon a thorough knowledge of existing conditions, and deplores the fact that much of the well-meant work being attempted today fails of efficiency because of the lack of such information. We therefore renew our recommendation of last year that an exhaustive agricultural survey of the state be inaugurated immediately and carried to completion within a reasonable period, under the direction of the State College of Agriculture. And we urge that such a survey not only includes an examination of soil, crop, livestock and climatic conditions, but also of transportation and market facilities, farm economy, capitalization of land, income derived from various branches of the business, distribution and character of rural population, educational facilities and social conditions — in fact, every phase and element of country life.

This is the first recommendation of your Committee on Development of Agricultural Resources.

I regret exceedingly that Professor Bailey is not present with us at just this moment, for I would ask him to say a word as to the making of the agricultural survey. To be brief, however, your committee is inspired to recommend an agricultural survey largely from the fact that the College of Agriculture at Cornell has within recent years made such a survey in Tompkins county; one or a partial one in Orange county and also a partial one in one of the northern counties of the state—in Jefferson county. The information gathered in such a survey, the Cornell people tell me, has been really astonishing, and has opened the eyes of the men who made the survey to conditions which they and we had no idea were existing. They have gone from house to house and have talked with each farmer confidentially without the intention of spreading that farmer's personal affairs upon the record or making his business public. They have discussed with him his mode of living, what crops he is growing, what his gross income is, what his net income is, what facilities his wife and children have for social intercourse with their neighbors, what facilities for education his children are taking advantage of; in fact, they made an exhaustive report and went into every element and phase of country life. In doing so they have been able to collect, in Tompkins county particularly, where I understand that the survey was most complete, a very valuable amount of information upon which as a basis they think (and your committee is inclined to strongly agree with them) that the state may more profitably expend the millions of dollars that are being spent today in the development of agriculture. In other words, the Cornell people believe, and your committee believes, that a survey of this sort will build a foundation which as yet has never been built. We have been working in the dark in many, many respects and we have not realized that what is good for the farmer of St. Lawrence county is not necessarily good for the farmer of Orange county, and that what is a logical conclusion for the farmer of Columbia county is not necessarily a correct formula for the farmer of Chautauqua county. It has been sug-

gested by the Cornell people that a survey of this kind be made county by county. To do it intelligently and thoroughly will take eight or ten years. It can not be done in one or two years. If an attempt were made to do it in that space of time it could not be thoroughly done, and of course to be thoroughly done, we must have the coöperation of the men and women who are to give the information which is later to be tabulated and used as a foundation for the development of the agriculture of the state of New York.

The second recommendation of your committee is as follows:

Your committee believes that the time has come for a serious consideration of ways and means for increasing the meat supply. With our constant increase in population and recent decrease in the number of animals, due largely to the cutting up of the great cattle ranges of the West, a severe shortage in meats has come about. It is apparent that eventually the bulk of the meat supply must be furnished by the small farmer, or else the American people must materially reduce their meat ration. We believe it the part of wisdom for our Agricultural College and secondary schools to devote serious attention to the possibilities of beef making in New York. The consuming population is at our doors, our pastures are unexcelled and our ability in making ensilage with which the young animal may be brought to prime condition in a short feeding period has long since been proved. As a preliminary step in arousing interest in this subject, and ascertaining the possibilities of the situation, we respectfully urge the State Fair Commission to offer premiums at the State Fair for beef animals, with particular effort to the holding of exhibits and offering premiums for baby beef.

In elucidating this recommendation, Mr. President, I think I may only remind the society and its members that perhaps next to wheat, which is made into bread, the American people regard beef as second in importance as a staple article of food. The consumption of beef in America is something astonishing and far surpasses that of any other nation; and there are some who believe that perhaps our consumption of that article of food is an explanation for the energy of our people. To say that we can continue to supply ourselves with beef from the West of course is absurd. The

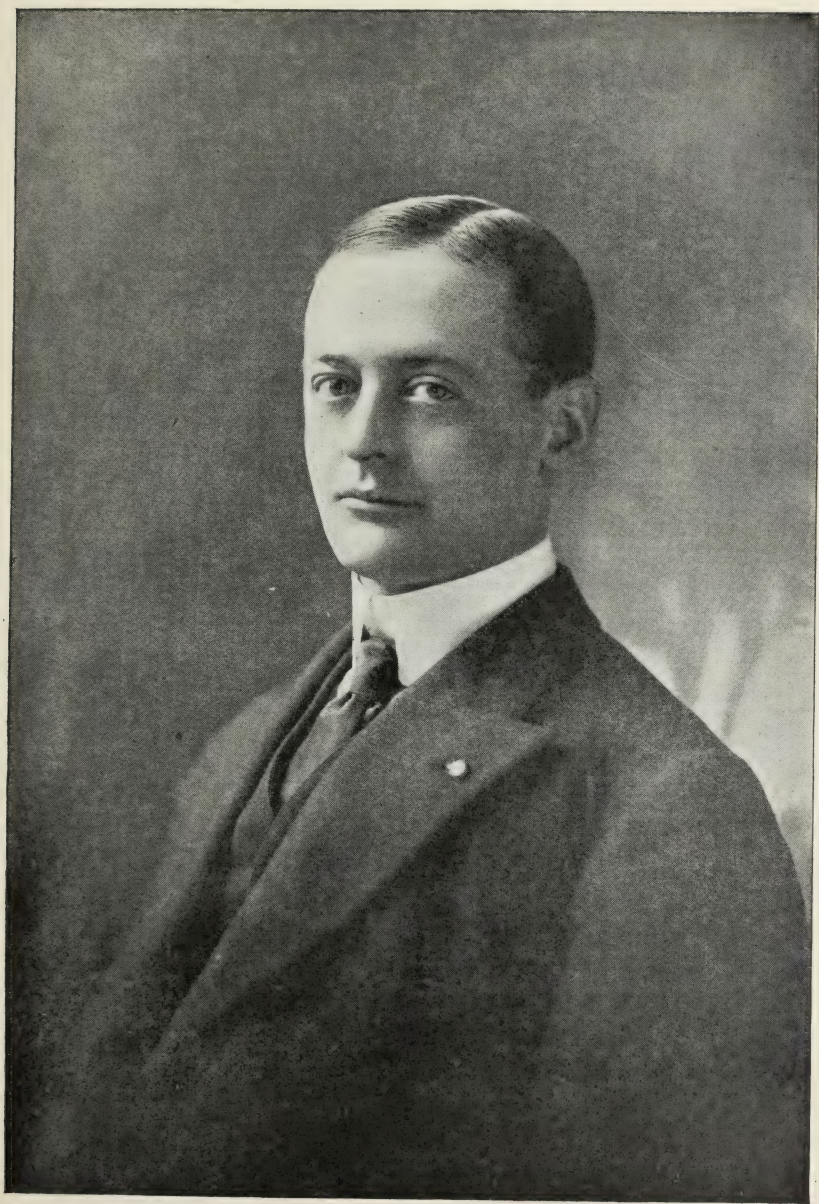


FIG. 244.—JAMES W. WADSWORTH, JR., CHAIRMAN OF COMMITTEE ON
DEVELOPMENT OF AGRICULTURAL RESOURCES.

government or public range has been homesteaded very largely under the homestead law; has been fenced off by settlers, until it has become a saying that the cow-puncher is passing away and with him must go the great herds of cattle from which the American people have very largely derived their meat supply. If we are going to continue our consumption of 152 pounds of beef each year for every man, woman and child in the United States, our present rate, it must be apparent that we have got to have some new way of raising it. The prices which are being obtained today for beef would lead one to be confident that the small farmer is justified in going into the raising of beef on a small scale and somewhat as a side issue; and it is this thought which your committee desires to inject into this discussion and lay before the society, and, with the approval of the society, to lay before the men who are conducting our educational institutions, and the men who are conducting our State Fair. For we believe that the dairyman who is engaged in the business of cattle breeding and in cattle feeding may very well seriously consider whether he can not profitably keep some of those male calves, fatten them in a short feeding period and make money by selling them as baby beef, say at 18 months of age and weighing from 800 to 1,000 pounds, at a price doubtless as high or higher than 8 cents a pound on the present market.

Your committee does not pretend to say that it has reached an absolute conviction upon this subject, and we lay it before you for your consideration and for any discussion that may come up.

MR. SCHRIVER: I desire to move that we adopt the report of this committee. Speaking about the farmers in New York State making beef, in my young manhood days in Dutchess county that was the chief business. Drovers brought steers in from Ohio, which was the great West then, at two to three years old, and we kept them in Dutchess county until they were four or five years of age, and as there were no railroads then we drove them down to what was known as Bulls Head Market, New York.

I think this suggestion of the committee is wise. We are looking for some relief. More than one thousand cows have gone out of business in my little neighborhood within the last two or three

years. We are going out of the liquid milk-making business in Orange county just as soon as possible. My nearest neighbor, a farmer, who kept 100 cows, keeps one today. This raising calves and making beef opens a door. I move that we adopt the report of the committee.

MR. TUTTLE: I will second that motion, but in doing so I want to point out one or two things which seem to me to lie under the recommendation. I think the recommendation is superficial in its application. We have to find how we can dispose of the beef after we have raised it in a different way than we can now dispose of the beef which we produce in a small limited way on our farms in the East. The fact is that if a man has one or two good beef cattle today he can not dispose of them to any advantage whatever. He may possibly get the local butcher to take one, but probably not. The local butcher depends for his meat supply on the western dressed beef companies and he will not buy one or two local beef cattle and slaughter and sell them out at retail. There is no machinery in the East now that I am aware of, that is adequate at any rate, to gather up the small volume of beef cattle here in the East over the scattered farms and bring them into an orderly process of slaughter and distribution. That is owing of course to the organization of the great beef companies in the West where the supply has been found. There has to be a reorganization of the business of collecting these beef cattle and of slaughtering and distributing beef here in the East. These are the underlying factors of this proposition and that is the reason why the recommendation is superficial. We have got to get at some fundamentals before we can get to this point of inducing our farmers to raise beef cattle. Butchers are dependent for their beef supply on these western beef companies and if they knew the butchers bought these beef carcasses from the farmer they would be boycotted and hampered in every way in getting their meat supply. That may seem like a dream, but it is not a dream at all; that is the condition, I point it out to you.

MR. STEVENS: In the first place, it is clearly evident that we have no machinery for gathering beef in the East, and the reason is because there is no beef to gather. If we had beef for sale there would be plenty of agencies for gathering it. In the matter of

large packing houses refusing to sell to butchers who buy local beef, I took that matter directly to the general manager of the Armour Packing Company and asked him if it was so. He said to me it was not so. He said if any person in the East, or anywhere else, would give him any data to show that any traveling salesman refused to sell to a butcher because he bought locally, that man would lose his job before sundown the next day and the butcher would be supplied with beef from the packers.

MR. TUTTLE: I refer for my authority either to the Rural New Yorker or the American Agriculturist, and both of these gentlemen are here and will verify my statement.

MR. SISSON: The matter under discussion is the adoption of the report of the Committee on Development of Agricultural Resources, which contains two definite recommendations, one for an agricultural survey of the state and the other on the producing of beef on the farms of New York State. I think we may properly act upon the recommendations in this report immediately, as the matter which Mr. Tuttle has brought up in connection with the beef is after you have once produced it.

Motion carried.

MR. SISSON: I think there will be no better time for me to read a telegram I have just received than now:

“CEDAR RAPIDS, IOWA, *January 21, 1914.*

“GEORGE W. SISSON, JR., *President State Agricultural Society, Meeting in Capitol, Albany, N. Y.:*

“GREETING. Your program shows many faithful old fighters still in the ring, and new ones added. Success to you. Agricultural advance is the order, here, there, everywhere.

“R. A. PEARSON.”

MR. BRUCE: I should like to introduce a resolution now or at some later time, as instructed by the Chair.

MR. SISSON: We will receive the resolution.

MR. BRUCE: The resolution is as follows, and is connected with the question of extension of powers to municipalities:

WHEREAS, The producers of this state can only secure better prices for farm products by free entry into the markets of the

state, and the consumer can only hope for larger supply of food-stuffs at lower prices by reorganizing the method of receiving and distributing such food products in the cities of the state, therefore be it

Resolved, That this society recommend to the legislature the enactment of such legislation as will permit the municipalities of the state to establish suitable markets, particularly terminal wholesale markets, to which the producers may consign their products to be sold at auction under the supervision of the various municipal authorities, to the end that the food supply may be distributed from producer to consumer at minimum cost and to the advantage of both.

MR. SISSON: Under the ruling, this will go to the Committee on Resolutions.

MR. PALEN: Is this the proper time to introduce another resolution?

MR. SISSON: Yes.

MR. PALEN: I have been requested to offer the following resolution. With your permission I will read it.

MR. BOSHART: I move that the resolutions be handed, without reading, to the Committee on Resolutions.

MR. SISSON: If that is satisfactory, I think it will be the better way.

MR. PALEN: I bow to the will of the majority, always.

(Resolution given to the Resolutions Committee.)

MR. SISSON: We are now to listen to the report of our Committee on Drainage, by Honorable Richard W. Sherman, Chief Engineer of the State Conservation Commission.

REPORT OF COMMITTEE ON DRAINAGE

RICHARD W. SHERMAN

Honorable John D. Moore of New York, who is one of the three Conservation Commissioners of the State, is Chairman of your Committee on Drainage. The Commissioner is unable to be here as he has some state business in Rochester today. I regret his absence as much or more than you do. Commissioner Moore and myself, as Chief Engineer of the Commission, are very much in-

terested in the subject of drainage, and it is to be regretted that Commissioner Moore could not be here himself. I am here as his substitute.

The purpose of drainage is to make wet places dry. If any of you have a swamp and you can make it as dry as you will find the paper I am about to read to you, I am sure you will be satisfied with your swamp.

During the history of the state numerous laws on the subject have been enacted and quite a number of drainage schemes have been executed under their provisions. Nevertheless, the laws, together with the very limited accomplishments under them, have not been satisfactory. There have been alleged bars in the Constitution of the United States and in the Constitution of the state of New York in the past, to the enactment of laws under which it would be possible to reach the most desirable results in drainage, both as to small schemes in some cases of only a private nature, also as to those on so large a scale as to make them of a public nature.

Such United States constitutional questions may still be raised in the state of New York, while New Jersey is working successfully on drainage schemes under its constitution and laws which, seemingly, do not conflict with the United States Constitution.

The portion of the United States Constitution which the New York courts have in some cases construed as a bar to carrying out some drainage schemes under former New York State laws is found in Article XIV, section 1, as follows:

“Nor shall any state deprive any person of life, liberty or property, without due process of law.”

The New York State Constitution, Article I and a part of section 7, reads as follows:

“General laws may be passed permitting owners or occupants of agricultural lands to construct and maintain for the drainage thereof, necessary drains, ditches and dikes upon the lands of others, under proper restraints and with just compensation, but no special laws shall be enacted for such purpose.”

It certainly seems, and I have no doubt that laws may be enacted in harmony with the above quoted provisions of the Constitution of the United States and that of the state of New York

to carry out all reasonably necessary drainage schemes. Possibly this has been accomplished in Chapter XV (Drainage Law), and in Article VIII of Chapter LXV (Conservation Law).

The question of the purpose of any drainage scheme being public or private is a matter that can only be determined by the courts in each case. Where the courts hold that the purpose is public, existing laws, namely, Chapter XV and Chapter LXV of the Consolidated Laws seem to be sufficient, but to be secure in the premises, it seems desirable that an adjudication be had in each case before expenditure of funds, beyond that necessary for preliminary work such as survey, etc.

That public health, safety and welfare, or at least one of the first two, in a marked degree, are necessary conditions to a scheme being of a public nature, may be conceded. If the area to be drained is large and important and the increased productiveness of the land and enhanced land value would be very great, it might be considered as a subject of public welfare and that the improvement could be made under existing laws even if the feature of public health and safety were not considered. It is possible that our courts would so hold in some cases.

Following the established principle that one private owner may condemn a right of way across the property of another, if he has no other means of egress and ingress, it is possible that if the matter was of sufficient importance the courts would sanction the condemnation of right of way over which to establish a ditch, etc., and the maintenance thereof, to enable one or preferably several private owners to drain their swamp and low wet lands over the lands of other private owners, irrespective of any matter of public health and safety. In such a case, however, the benefits that might accrue to the property over which the right of way was condemned could not be offset or deducted from the damages awarded and the owner of the land affected by the condemnation would derive all incidental benefits free.

The foregoing are, to my mind, the principal features of law involved as clearly as I can set them forth within the limits of this address.

The case of John B. Tuttle, et al., growing out of a drainage scheme in Orange county originating in the County Court, was

taken on appeal to the Appellate Division and Court of Appeals. The case is reported in 36 N. Y. 492 and 163 N. Y. 133. It was decided by the Court of Appeals May 15, 1900. The drainage laws have been considerably changed and doubtless much improved since then. The principles set forth by the learned judges who wrote the opinions in the Appellate Division and Court of Appeals are very instructive.

DRAINAGE LAWS

There are two general laws on this subject

First: Chapter XV of the Consolidated Laws entitled "Drainage Law."

Second: Chapter LXV of the Consolidated Laws entitled "The Conservation Laws;" Article 8 thereof being entitled "Drainage." Article 7 thereof is entitled "River Improvement," which is closely allied to the subject of drainage.

Chapter XV—"Drainage Law"—makes elaborate provision for the execution of drainage schemes under local official authority, the application of it being intended for drainage schemes too small to warrant action by the Conservation Commission. Three of the articles of Chapter XV—"Drainage Law"—are entitled as follows:

Article II. Drainage for protection of public health.

Article IV. Maintenance and enlargement of ditches.

Article VI. Drainage of agricultural lands.

Chapter XV provides for the ways and means necessary for carrying out its purposes, including the right of condemnation. In "drainage of agricultural lands," however, the right of condemnation is not made to apply, and there must be a mutual written agreement between all the property owners interested authorizing the excavation and maintenance of the necessary ditches upon or across their lands, and each owner must pay his proportionate share of the cost as determined by mutual agreement, or, under the provisions of the law, in case of their inability to agree.

Chapter LXV of the Consolidated Laws, entitled "The Conservation Law," has the same general purpose as Chapter XV (Drainage Law), but is intended to apply to drainage schemes

covering large areas and of greater importance and cost. The purposes for which drainage schemes may be carried out under this law are stated therein to be "the conservation of public health and safety," or "the conservation of the public welfare." The public safety and welfare features of this chapter are not included in Chapter XV (Drainage Law). Under this law (Article 8, Conservation Law) provision is made for ways and means for carrying out its provisions, including condemnation, the issuing of bonds, the making of assessment-rolls of benefits to the property in the improvement district and the levying of taxes thereon for the payment of bonds, interest, maintenance and expense.

ACTION BY CONSERVATION COMMISSION IN DRAINAGE

Beyond some very preliminary investigations and a preliminary survey, based on property owner's petition in one case, the Conservation Commission has not taken any action under Article 8 (Drainage) of the Conservation Law. The principal reason for such inaction has grown out of a litigation instigated by a property owner, Mr. Bingham (of which I shall speak later), in the Canaseraga Creek Improvement District, in which district an extensive improvement which will cost two hundred thousand dollars or more is being executed under the provisions of Article 7 of the Conservation Law, entitled "River Improvement." The general nature and purpose of improvements authorized by Article 7 (River Improvement) is to prevent the overflow of lands by flood waters or to lessen the frequency of such overflow and the volume thereof. Such improvements have a different purpose from those covered by Article 8 (Drainage) of the Conservation Law.

However, it is inevitable that by deepening, enlarging and straightening existing channels or by the excavation of new channels for the carrying off of flood waters, considerable beneficial drainage to adjacent lands will result, notwithstanding that such drainage is not the controlling purpose in making the improvement.

The purpose for which the improvements under Article 7 may be made, as set forth therein, is the preservation of the public health and safety. Public welfare, as set forth in Article 8 of the Conservation Law, is not included in Article 7 thereof.

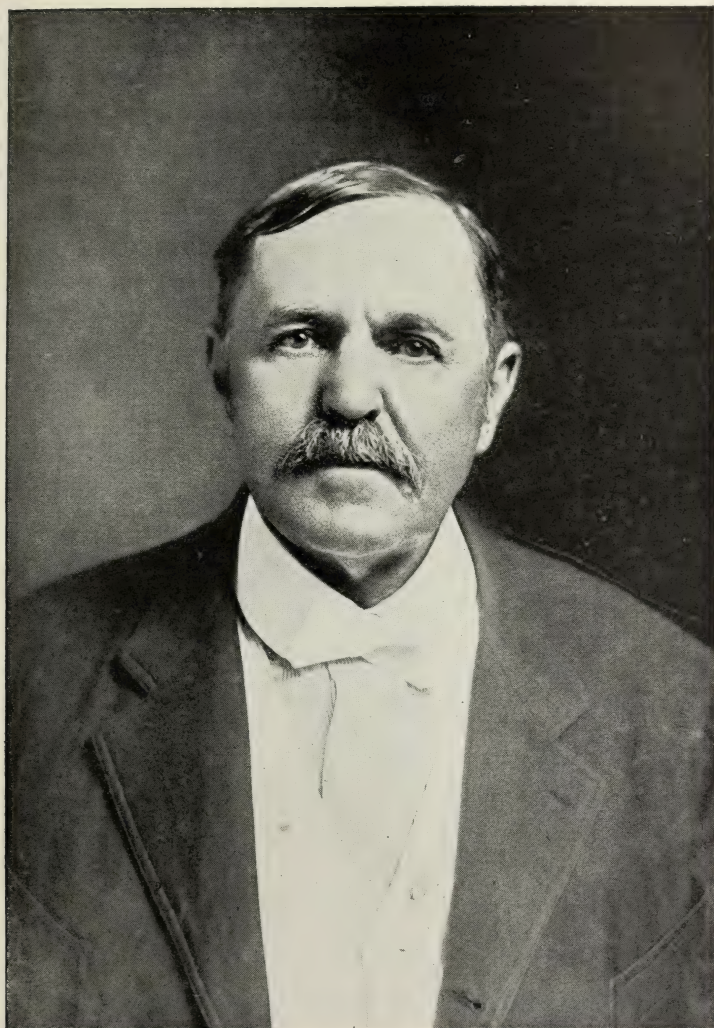


FIG. 245.— RICHARD W. SHERMAN, CHIEF ENGINEER, STATE CON-
SERVATION COMMISSION.

AREA OF SWAMP AND LOW WET LANDS IN NEW YORK STATE

It is estimated by reference to the United States Geological Survey maps that there is at least 150,000 acres of swamp lands in the state. There are numerous other areas both small and large, not shown on said maps as swamp, but which are low and wet to a degree detrimental to public health and on which production in crops is from zero up to a point far below the degree of profitable production that would result from proper drainage.

The total area of such swamp and low wet lands is probably equal to four hundred square miles, or about twenty miles square, or as large as any one of a number of the counties in the western part of the state. Such swamp and low wet lands, when properly drained and put under a high state of cultivation, are more productive and of much greater value, as a rule, than good lands which were never in need of drainage.

There are cases in this state where such swamp lands of almost no value have, through proper drainage, been put under so high a state of cultivation as to have a market value of one thousand dollars per acre.

A number of drainage schemes have been carried out through investors, promoters and speculators who have bought large areas of swamp land, drained and improved them, and sold or leased them at a good profit. In these schemes only improved agricultural conditions and value were sought, while the benefit to the public health has been unavoidable and incidental only.

Among the schemes of this nature now under way are one or more on a large scale in Oak Orchard-Tonawanda Swamp territory.

CANASERAGA CREEK IMPROVEMENT

This improvement was instituted under the River Improvement Commission. It was continued under the State Water Supply Commission, which succeeded the River Improvement Commission, and by the Conservation Commission, which succeeded the State Water Supply Commission in 1911, in which year the work was commenced. It will be finished in 1914. The several provisions of law which were applicable thereto, previous to the enactment of the Conservation Law, were in substance embodied

in Article 7 of the Conservation Law, under the provisions of which the Conservation Commission is now acting in the premises.

Two hundred thousand dollars of 5 per cent. river improvement bonds were issued for this improvement, in addition to which some other sums provided by sundry appropriation laws had been previously applied to it.

Up to the close of the last fiscal year (October 1, 1913) approximately one hundred and fifty thousand dollars had been expended or obligated upon the improvement, included in which is twenty-five thousand dollars for interest on the bonds. Approximately ten thousand acres are included in the Canaseraga Creek Improvement District, the district being confined to areas that have been overflowed.

The work as designed requires thirty-four miles of improved and new channels, the principal channel being the improved channel of Canaseraga creek, fifteen miles long. The other channels, namely Keshequa creek, State ditch and Bradner creek, are in the aggregate fifteen miles long. The excavation of the thirty miles is being done by floating dredges. There are four miles of smaller channels, which are being excavated by other means. The bottom width of the Canaseraga creek channel is twenty-six feet at the upper end (near Dansville) and fifty feet at the lower end (near Mt. Morris). The other channels vary in bottom width from eight to fifty feet. Over eight hundred thousand cubic yards of excavation is required, which is being done at a contract price of twelve cents per cubic yard. There are a number of highway and farm bridges and other incidental work in the improvement.

While the work is not yet completed, the benefits which have resulted from that so far done in preventing the overflow of the district during many floods and the lessening of the time when the territory was submerged during the record breaking flood in the spring of 1913, are fully up to expectations.

That the general health of the people in the district will be improved as a result of the lessened number of the overflows and and shorter duration of inundations is evident.

That the safety of lands and property has been conserved and flood damages reduced is a fact.

The possible productiveness of a large part of the lands in the district has been greatly increased. To illustrate: Lands which many years ago were suited to the raising of nursery stock or to prolific crops of beans, etc., have been almost abandoned by reason of the loss of say two crops out of three caused by the land being overflowed during the growing season. Since the excavation and opening of the new channels, such lands have not been overflowed during the growing season and may now be safely depended upon for annual crops. Thus public safety is conserved. The maximum floods occur almost without exception in the latter part of the winter or early spring when the damage therefrom is small in comparison with overflows occurring in the growing season.

In the matter of incidental drainage over a large part of the district, extending for considerable distance at right angles in both directions from each of the new and improved channels, the underground drainage effects are very noticeable and beneficial. These benefits are inevitable to the existence of the new and improved channels.

This is the first great river improvement scheme of its nature, undertaken and carried out through the intervention of the state. The River Improvement Law has gone in litigation through the courts and its constitutionality and other important features fully sustained by the Appellate Division and the Court of Appeals.

The way is now clear for the first time in the history of the state for like improvements being carried on successfully in expeditious ways to completion. That great benefits will result to the numerous communities which will doubtless avail themselves of the advantages offered through this law, there is no reason to doubt.

CANASERAGA CREEK LITIGATION (BINGHAM SUIT)

Charles W. Bingham, as trustee for certain property within the Canaseraga Creek Improvement District, brought an action in special term to restrain the State Water Supply Commission from including said lands as within the Improvement District upon the ground that the proceedings of the commission were illegal, and even if legal, no benefits would result to the lands in question. The Special Term Court passed over the question

of benefits and based its holding on other grounds, holding that the scheme was one for the drainage of agricultural lands and should be done under Chapter XV of the Consolidated Laws (Drainage Law) and not under the River Improvement Law — then, January, 1911, was Chapter 734 of the Laws of 1904 — since repealed and incorporated in Chapter LXV of the Consolidated Laws (Conservation Law). The Special Term also held that the approval of the "Final Order" of the Commission by an act of the legislature made the subject one of special law, prohibited by the State Constitution as to drainage.

The Special Term Court held in conclusion, "for the reason that any assessment made by the defendant Commission will be void if levied to pay for drainage work under the plan outlined, the prayer for the petitioner must be granted and his land must be exonerated from said assessment."

The Conservation Commission appealed the case and on such appeal the Appellate division reversed the Special Term and fully sustained the contention of the Commission. Thereupon, Mr. Bingham took the case to the Court of Appeals, which court fully sustained the Appellate Division and incidentally the Conservation Commission. As a result the law is now so well established that it seems perfectly safe for the Commission to proceed under it in any future schemes of a similar nature.

The holding of our highest court in the Bingham case as to Article 7, "River Improvements," has an important bearing upon Article 8, "Drainage," and there is the best of reason for believing that the courts will sustain all proceedings properly carried on for drainage schemes under the conservation law.

That the holdings of the court in the Bingham case has an important bearing upon the constitutionality and other features of Chapter XV, "Drainage Law," there can be no doubt and there is good reason to believe that proceedings properly carried on under that law will be sustained by the courts.

The opinion in the Appellate Division in the Bingham case was written by Judge Lambert and may be found in 153 N. Y. 587. It is interesting and instructive reading for any person interested in drainage.

This address is already so long that I do not feel at liberty to quote extensively from Judge Lambert's opinion.

It is understood that the Conservation Commission stands ready to take up any matters that may be brought before it by petition under Article 7 for River Improvements and under Article 8 for Drainage. It is certainly the intention of the Commission to use its best efforts to the greatest possible accomplishment in both subjects. It seems desirable that much more should be done under local authority in the way of executing small drainage schemes under Chapter XV (Drainage Law).

MR. SISSON: Will Professor Fippin take up the discussion at this time?

PROFESSOR FIPPIN: I would request that Professor Robb precede me in this discussion.

PROGRESS IN DRAINAGE UNDER THE DIRECTION OF THE NEW YORK STATE DEPARTMENT OF AGRICULTURE

PROFESSOR B. B. ROBB

In the campaign for better drainage the New York State Department of Agriculture has not been inactive. Through the medium of the Farmers' Institutes the advantages and principles of land drainage have for years been expounded to the farmers, and recently several members of the institute staff have done a limited amount of actual field work. During the past three summers the writer has been employed as field engineer for drainage work exclusively, at first on the farms of the various state institutions, then on the problems of individual farmers, and more recently on the improvement of several large swamp areas in different parts of the state. Problems unfinished in the fall have been completed during the winter in coöperation with the Department of Rural Engineering at the State Agricultural College, where the writer has charge of farm engineering during a part of the school year. In the eight months of actual work during these three summers the following has been accomplished:

Eleven state institutional farms, aggregating 5,000 acres, have been visited, of which about 1,000 acres have been surveyed and mapped and drainage laid out thereon.

Over one hundred calls by individual farmers have been answered, resulting in the visiting of 61 farms and the preparation of 30 maps with drainage systems laid out for an area of approximately 2,500 acres.

Ten swamp areas, aggregating about 7,000 acres, have been visited and drainage plans prepared for five of them, for which work four original surveys were made and maps prepared, covering approximately 5,000 acres.

The time required for the average trip devoted merely to inspection and consultation, with possibly a little field leveling, is about three days, of which two days are devoted to traveling; although in several instances the engineer was not called until general local interest had already been aroused, when a number of farms were visited in quick succession.

A trip involving a complete survey and map for an average farm would mean probably two days of travel, two days of field work with instrument and eighteen or twenty hours of office work in plotting the field observations, drawing the map, planning and drawing in the drainage system and writing the report.

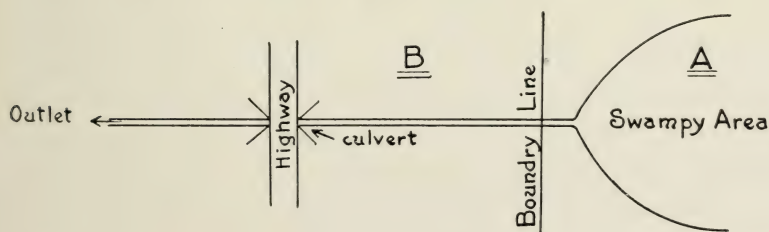
In the work of extending aid to individuals it is evident from the above figures that the dispatching of an official from one central depot often results in the expenditure of a seemingly unnecessary amount of time and money in traveling. In developing a campaign of individual assistance it is evident that every effort should be made to enlist the coöperation of any local state officer in any way connected with agricultural education who is competent to give advice of this kind. The newly organized Department of Farm Bureaus with its many county agents located throughout the state at once suggests itself as the logical means of developing this work with the minimum expenditure of time and money. Naturally the farmers will look to the county agents for help first. But, as the agent is ordinarily not equipped either with the necessary surveying instruments or a knowledge of their use, he solicits state aid. This we are more than glad to give him, as it puts us in touch with a man acquainted with local conditions and fosters a spirit of coöperation. After a county agent has worked thus on one or two surveys he becomes familiar with our methods and is quite competent to handle any future small problems that

may arise. It is evident therefore that the efficiency of the drainage engineer will be increased in direct proportion to the number of county agents or other local men receiving this training.

It is a pleasure to note that this activity of the State Department in giving gratuitous aid does not serve to diminish the legitimate business of the local engineers but on the other hand it has been reported as fostering it.

These agencies, then, together with other state movements for better drainage should materially aid the farmers in the solution of technical engineering problems. There will be encountered, however, many situations where the farmer is practically powerless to act because of the shortcomings of parts of the present drainage law. I refer to situations where the only possible outlet for drainage lies across the land of some other party. It too often happens that the other party will not readily permit such passage and the farmer, if he would improve his land, must have recourse to legal procedure. The present law provides a means by which the obstructing party may usually be forced to permit the construction of the necessary outlet. Unfortunately, however, the necessary expense involved in this procedure is so great that the average farmer can not afford to undertake it. Let me explain this more in detail as it is a vital point.

Let us suppose the following case:



Mr. A owns a low swampy area near a highway but separated from it by a narrow strip of property owned by Mr. B. The only outlet for a drainage system which will reclaim the area in question is through the road culvert as shown in sketch. The question now arises as to how Mr. A is to legally, quickly and economically obtain his outlet to which we believe he should have a right Chapter 624, Laws of New York, entitled "An act to amend the drain-

age law generally," provides that Mr. A may present a petition duly verified to the court of the county in which such lands lie, who shall determine whether drainage be necessary and report same to court. The procedure in itself, so I understand from a competent lawyer, would cost at least \$200 providing little or no opposition were encountered. This amount in many instances would more than pay for the installation of the necessary drainage.

The point which I wish to make is that Mr. A should be able to obtain this outlet without going to the expense of the above procedure, while at the same time Mr. B should be safeguarded by law.

A legal change which would correct this difficulty will presently be suggested, but before it is taken up let us consider what should be done when an outlet drain paid for and built by one farmer through the land of another is later found to be an improvement of material value to the lands of this other. Apparently the constructor of this drain should be repaid by his neighbor an amount proportional to the benefit actually done the lands of the neighbor. In Section 14, Article I of the present drainage law, which is Chapter 15 of the Consolidated Laws of New York, an attempt has been made to meet this situation but unfortunately this portion of the law has been declared unconstitutional and void on the basis of the decision in the Tuthill case as recorded in Vol. 163, New York Reports, p. 133. This decision was based on the opinion that assessments made under essentially the conditions we are considering imposed a tax on a landowner not for the benefit of the state but for the benefit of another landowner. Moreover, although it was not stated in the decision, one judge strongly intimated that the taking of land for the mere purpose of drainage was not such a public purpose as to authorize the use of the power of eminent domain.

However, the court goes on to say that undoubtedly where public health is involved a constitutional provision on this point would not be in violation of the Federal Constitution. In view also of the fact that the courts do not take kindly to statutes extending the individual's right of eminent domain or which do not clearly come within the provisions of the constitution upon that point, it is deemed advisable to bend our efforts toward securing a consti-



FIG. 246.—PROFESSOR B. B. ROBB, DRAINAGE ENGINEER, STATE DEPARTMENT OF AGRICULTURE.

tutional amendment rather than a statutory provision, looking to the betterment of this part of the drainage law.

Provided the voters so decide at the coming special election in April of this year a constitutional convention will be held in 1915.

I, therefore, propose that all the agencies interested in the betterment of drainage conditions in this state put forth every effort to send to this convention members who will be favorable to the following proposition which is an addition to what is now Article I, Section 7 of the Constitution of New York State:

The owners or occupants of agricultural lands may construct and maintain necessary ditches or other drainage improvements over the lands of others, whenever the public health or agricultural drainage will be sufficiently benefited thereby. The existence of such facts together with just compensation for the taking of such land shall be determined by three or more commissioners, none of whom need be appointed by a judiciary. The findings of the commissioners shall be subject to review by a Court of Record, at the instance of the party aggrieved and in the manner prescribed by law.

You will note that in this draft the idea of public improvement rather than mere private advantage has been emphasized, *i. e.*, public health or agricultural drainage.

It is deemed advisable to allow the commission to determine the questions involved in the first instance, since this will avoid what now deters such action, *i. e.*, great expense upon the one who wishes to improve drainage conditions and will cast the burden of attack upon the one whose land is taken.

The question might arise, of course, as to whether this procedure were "due process of law" within the meaning of the Federal Constitution. It is submitted, however, that the fact that there exists a state constitutional provision on this subject will have great weight in determining this question.

The matter of assessment of benefits has been omitted from the proposed constitutional amendment as it is thought that it can best be dealt with by statute. An insertion of it into the constitutional provision might clog the other portion and render it too rigid and ineffective. Moreover, the matter of assessment is something which must be alluded to most carefully.

Time will not permit further discussion of this topic. It has been shown, in a general way, what the New York State Department of Agriculture is doing in developing the drainage interests of this state, and reference has been made to the inefficiency of

the present drainage law with a proposed method of improvement. In closing, let me suggest that this whole question of improved drainage law be referred to the Committee on Legislation, with instructions to take immediate action thereon and also to take the matter up with the New York State Drainage Association.

THE DRAINAGE PROBLEM IN NEW YORK STATE

PROFESSOR E. O. FIPPIN

The problem of drainage has three phases. Its primary concern to this association is as a means of developing the agricultural resources of the state, and the first question that arises is the extent of land that needs drainage. The second question is the method by which that drainage may be accomplished. The third question has to do with the hindrances that may be placed in the way of securing that drainage.

On the first point, the need of drainage in New York State, Mr. Sherman has stated that we have in New York about 150,000 acres, or what is approximately 2,300 square miles of swamp land, and as a conservation measure the drainage of that land is, of course, an important item. I want to call your attention to the fact that the drainage of this swamp land is a minor phase of the drainage problem in New York State, the bigger phase of it being the drainage of about five or six thousand square miles of land already in farms that are being worked at a loss because of the lack of adequate drainage. I arrive at that figure in this way: There are in crops in the state somewhere between ten and eleven million acres and our examination of land in different parts of the state leads us to believe that at a conservative estimate 30 per cent. of this land now devoted to crops is seriously in need of drainage. In some counties as high as 60 or 70 per cent. of the land needs material drainage. Therefore, the problem of draining this land is of fundamental concern in order to increase our agricultural production.

The second point to receive attention is the means by which land may be drained. Of course it is needless to remind you that water runs down hill, but sometimes it is very difficult to construct a system by means of which the water may have a free opportunity to run down the hill. There are numerous large areas of nearly

level land. These occur in the Champlain and Hudson valleys, on the Ontario and Erie plains, and in many other places. The drainage problems there involved are often not an individual matter but a matter that requires the coöperation of a number of persons. There are individuals in many communities who will not coöperate with their associates to accomplish drainage. In other words, there has been proved to be many individuals who will do all they can to obstruct their neighbors' improvement and their own benefit. Where all parties concerned are willing to coöperate there is no difficulty about achieving results. The great difficulty comes, however, in dealing with obstructionists.

This raises the third point in the problem of drainage, namely, the provisions of the state law which are designated to safeguard the rights of individuals and which are often made an excuse for the violation of an individual's rights. Drainage, as concerns us, is a means of agricultural improvement, because by increasing the productive capacity of a farm it is a public benefit. But, do you understand that our state laws in New York at the present time do not recognize — I should perhaps say, our courts do not recognize — drainage for purely agricultural purposes, as a public benefit. Therefore, the usual legal provisions by which a man should secure a right of way across his neighbor's land do not apply for purely agricultural drainage purposes. There was passed a few years ago an amendment to the New York State Constitution which provided that a drainage ditch for agricultural purposes shall be given a right of way across a neighbor's land. A law based upon that provision of the constitution was declared unconstitutional under the federal constitution partly because drainage for agricultural purposes was questioned by the court, but chiefly because of the method by which the right of way for the ditch was to be acquired. (163 N. Y. 169.) The law was corrected by amendment in 1910 through the efforts of the New York State Drainage Association. Our agricultural law as well as our conservation law is designed in terms to recognize drainage for agricultural purposes as a public benefit. The gentleman of the Conservation Commission has already called attention to the fact that the courts of New York are behind her neighbor states and behind federal rulings in the matter of recognizing

drainage for agricultural purposes as a public benefit. Illinois, Michigan, Indiana, Ohio and Iowa have been draining land with great facility under those same provisions of the federal constitution that are used to obstruct agricultural drainage in New York. Irrigation in the West, which involves the same principle, has for many years been ruled by the courts as perfectly legal. But in New York our courts and our lawyers, when consulted on the matter of agricultural drainage, immediately raise the point that drainage for agricultural purposes is not a public benefit and, therefore, does not permit of the operation of the principle of eminent domain.

Our agricultural drainage law (Consolidated Laws, Chapter 15) provides that its procedure may be employed for the benefit of the public health or for the agricultural welfare. Note the provisions — either for the benefit of the public health or for the agricultural welfare. The conservation law (Consolidated Laws, Chapter 65, Article 8) contains the clause. Therefore, we do not need any further laws on that point. We need a recognition of its application in the general benefit of drainage for agricultural purposes. This can come in two ways: First, by such recognition in specific terms in the state constitution which would be adequate instruction to our courts; second, we need a decision by our highest courts recognizing that agricultural drainage is a public benefit under our laws as they exist, and, therefore, the principle of eminent domain is applicable. The case which the honorable representative of the Conservation Commission quoted is in that direction, and you are to be congratulated that that case has been decided in favor of the recognition of drainage for agricultural purposes. It is a decided help. Unfortunately, however, it applies to Article 7 of the conservation law, which deals with streams and flood waters, instead of with Article 8, which relates to agricultural drainage. Even better would be such a ruling on the provisions of the agricultural drainage law. (Consolidated Laws, Chapter 15.) I have talked to a number of attorneys who are more or less conversant with these matters, and they always hesitate on that point of the public benefit of drainage for purely agricultural purposes. An individual farmer or a small group of farmers hesitates to carry a case to a final conclusion because of



FIG. 247.—PROFESSOR ELMER O. FIPPIN, NEW YORK STATE COLLEGE OF AGRICULTURE,

the cost involved. I am glad to say that we have had the heartiest coöperation from the Conservation Commission, they being willing with their legal facilities to develop a case and carry it through to a final ruling, as in the Bingham case. This is what we need now more than anything else, for it seems to me we do not wish to develop intricate machinery so that the thing will be done by force, but we wish to have such a clear definition of principles that by their moral force they will deter any man who has not a very sound case from going to court to hold up his neighbor. If drainage for agricultural purposes is recognized as a public benefit, then any man whose land is in the course of a drain would hesitate a long time before he would institute an action, or interfere, and that will put out of existence, I should say, 90 to 95 per cent. of possible cases of adjudication that arise. The big thing needed is decidedly a favorable court decision. The obstruction lies in our courts and not in our laws. Our judges have not been brought by our attorneys to see this matter in its true light.

One other matter that is to be settled by a decision of the courts is the distribution of assessments for drainage purposes so that land lying in the course of a commissioner's ditch and which is crossed by condemnation proceeding with proper award of damages may pay its fair proportion of the assessment for the drainage system.

Finally, I wish to discuss briefly the question of loans to farmers for drainage purposes. Land drainage is expensive. Many farmers would drain their land if they knew how to get the money, and some people have proposed that the state or some other public agency should loan money to the farmers for drainage purposes at a low rate of interest. There are two fundamental fallacies in this proposal. First, the farmer is a business man and is not a subject of special paternal care, and, therefore, not a subject to receive public loans at better than business rates of interest. I believe that the farmers of the state can stand on a footing with other business men and pay the ruling rates for the money they need. I believe that drainage is of such benefit that the improvement will justify a full rate of interest for the money required. Second, any loan should be based upon its soundness — as it has sometimes been put — the ability to repay. The ability to repay

depends upon two things — first, the external resources behind the individual, and second, his ability to apply that money to a productive purpose. We can dismiss the former case as that will take care of itself. Then the question comes down to the point whether money which a man may borrow to be used in drainage will be used on land which will give proper return. This is largely a matter of information and education. It depends upon a man's ability to know whether his land needs drainage. An individual farmer acting alone may of course be deficient in that knowledge. He needs education and advice on drainage matters. This is to be supplied in two ways: First, by instruction and advice from the proper public institutions in the state relative to the needs and benefits of land drainage. It is essentially an educational function of an extensive nature. It may, therefore, be provided by the expansion of existing agencies, the college and schools of agriculture and the several county farm bureaus. Second, to carry out the actual drainage surveys, deal with legal questions and supervise the actual construction of drainage systems in an efficient manner there should be developed experts in these several lines who may be employed by a farmer or group of farmers to deal with the more difficult private problems of land drainage. These are not public but private functions to be paid for according to their value by the persons benefited. When such agencies are available and are employed, I believe that funds will be forthcoming for purposes of land drainage, for those having money to invest usually know that money wisely expended for purposes of land drainage is safely invested. Safety means cheap money.

Two things then are needed to promote agricultural drainage. 1. Favorable court rulings on a few points. 2. Better facilities for educating and advising the farmer in matters of land drainage.

MR. SISSON: One of our lay members, a practical farmer, really suggested our taking up this topic of drainage. Our only excuse for taking it up is this: It is a broad question of agricultural development. We are not in the habit of taking up questions which are related to agricultural practice, but we have no apology to offer for taking up this topic. Mr. Findlay is here to say a word.

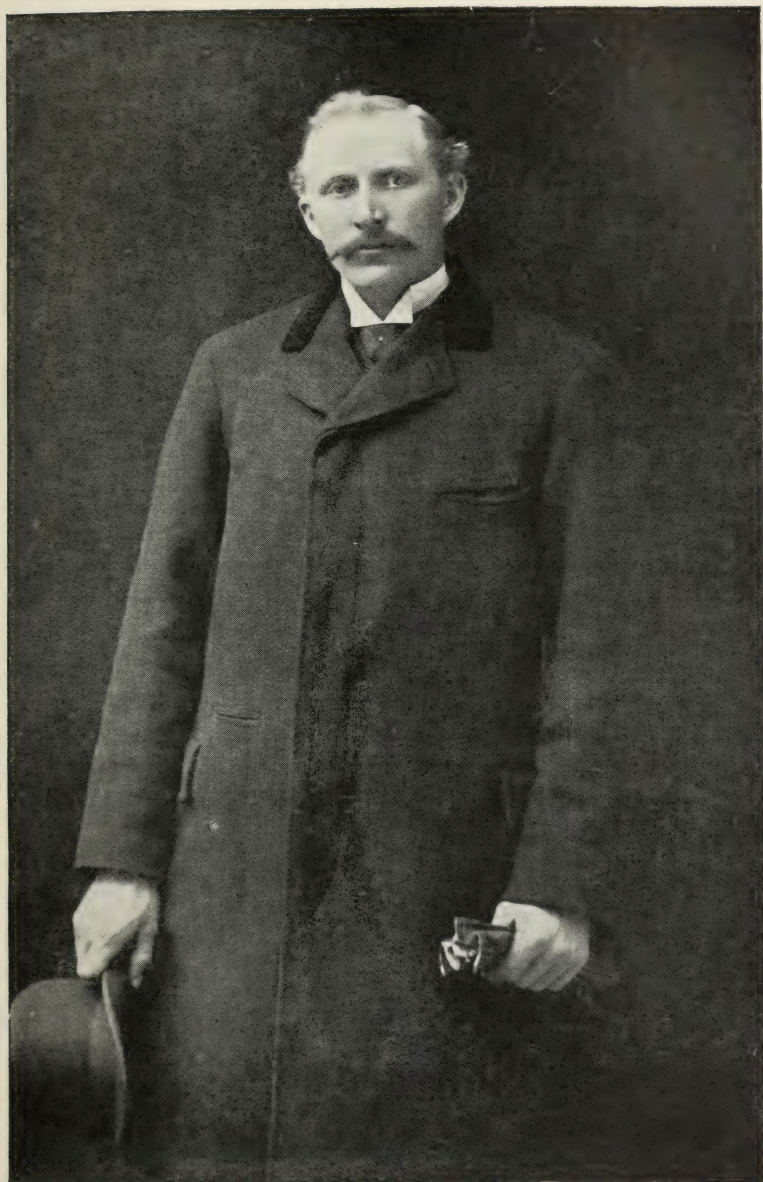


FIG. 248.—JAMES A. D. S. FINDLAY, SALISBURY MILLS.

MR. FINDLAY: The hour has come when we want to adjourn, and since you have heard from the Conservation Commission and from this professional gentleman, rather than mix up the good views and principles we have heard I had better say very little. I am in full sympathy with every word that has been said relative to drainage. I would like every farmer here — there are not many of us — to drain his land just as far as he can without recourse to law. You will find that if farmers in the state of New York will drain their holdings so far as possible without recourse to law, a great deal of draining will be done. All I ask you is that you drain what you can, and then we will try to drain the balance.

MR. SCHRIVER: One would think that this draining business was a universal panacea for all our ills. There are some soils for some purposes that need water just as much as sunshine, and it is possible to overdrain. Much depends on the nature of the soil and the nature of the crop to be raised on it, and I believe the courts are right in protecting individual rights of people in their possessions. I have connected with my farm 40 acres of what is known as black dirt. The soil has been redeemed from a swamp by ditching, reasonable ditching, but if those ditches had been dug too deep nothing could be raised. I have my 40 acres ditched with 800 rods of ditch, but I have a gate in times of drought by which I can stop the surface water and set it back over the land to help growing crops.

There are two sides to this drainage question.

MR. SISSON: We have had such a full program with our business session this morning, that we have just reached this last topic, "County Farm Bureaus." However, the forenoon is gone and I think we had better hold it until immediately after convening after luncheon.

We will stand adjourned until 2 o'clock.

AFTERNOON SESSION

Meeting called to order by President Sisson.

MR. SISSON: We will listen to Professor M. C. Burritt, who is State Director of Farm Bureaus.

MR. BURRITT: Just a word of explanation before I read my paper. It is only fair to you to say that I have been in charge of this work but about three weeks. My predecessor, Professor Tenny, has been in charge of the farm bureau development in this state for the past year and he has prepared a general outline covering the methods of organization of this work, which has been issued by the State College of Agriculture, Cornell University, as Farm Bureau Circular No. 1.

THE COUNTY FARM BUREAU MOVEMENT IN NEW YORK STATE

M. C. BURRITT

The Farm Bureau idea is a part of the extension movement which marks the third great educational period in American agriculture. The passage of the Morrill Act in 1862, providing for the founding of the agricultural colleges and the teaching of agriculture, marked the beginning of the first. The Hatch Act of 1887 and the founding of the experiment stations marked the second. The third is likely to be made permanent by the passage of the Smith-Lever Bill, now pending in Congress, which will insure the carrying on of extension work in whatever form most acceptable to the people of the states.

While the county Farm Bureau, particularly that phase of its activities which relates to the state and to the national departments of agriculture and to the College of Agriculture, and the central office of administration is strictly extension work, it should be pointed out that it differs fundamentally from all other so-called extension agencies in that it is not projected from, nor does it directly represent any institutions outside of the counties. The Farm Bureau is, in this sense, a local institution organized by the people of a county. At present even the initiative in developing sentiment for a bureau and in getting it started must come from the local people themselves. Afterward, this work is almost wholly in the control of the local people. The counties are, however, given the fullest coöperation of the central office, once they have decided to form local bureaus.

It is obvious that neither state nor federal funds can be expended without a certain amount of supervision. This supervision has now been centered in one office located in the College of Agri-

culture, and the interested parties, the National Department of Agriculture, the State Department of Agriculture, and the State College of Agriculture, have now signed a coöperative agreement to exercise their functions through one man, known as the State Director of Farm Bureaus. Besides the general administrative work, the State Director assists the local county men by advice, suggestions, personal visits, and in promoting relations with institutions outside of the county. The central office is also a sort of clearing house of information and of the experience of the various bureaus, receiving from each bureau and passing on to all the others successful plans and lines of work as well as warning them against methods which have proved unsuccessful.

HISTORY OF THE MOVEMENT

The growth of the Farm Bureau movement in the United States has been very rapid. In 1911 there were scarcely more than half a dozen bureaus. At the present time there are practically 225 in the United States, 25 of which are in New York State. In this state the movement originated with the establishment of the bureau in Broome County in the winter of 1911. This was soon followed by a bureau in Jefferson County and another in Chemung County.

Work closely related to Farm Bureau work as we now have it in New York State, had for several years been carried on in the Province of Ontario, Canada. A report of the character and progress of this work was given by this society at the annual meeting two years ago. In Bedford County, Pa., work very similar to our Farm Bureau work has been carried on for a number of years. Of course, the demonstration work in the South under the direction of Dr. Knapp is similar in many respects to our Farm Bureau work. It is, however, practically all confined to the demonstration of farm practice methods, and practically no work has been done in the South dealing with the larger problems of community organization and development such as is now being done in the North.

Following the establishment of the three bureaus above noted, and encouraged by state appropriation and other outside aid, many other counties in New York followed the lead of Broome, Jefferson

and Chemung. The following table gives the date on which the agents began work in the various counties and the total number of months worked*:

County.	Agent.	Address.	Date agent began work.	Months of work.
Broome.....	E. R. Minns†....	Binghamton..	March 1, 1911	37
Chemung.....	G. P. Seoville....	Elmira.....	April 1, 1912	24
Jefferson.....	F. E. Robertson..	Watertown....	April 16, 1912	24
Oneida.....	G. W. Bush.....	Utica.....	Nov. 1, 1912	16
Clinton....	C. B. Tillson....	Plattsburg....	Dec. 2, 1912	15
Herkimer.....	M. E. Chubbuck..	Herkimer.....	Dec. 2, 1912	15
Chautauqua....	H. B. Rogers....	Chautauqua... Jan.	1, 1913	14
Niagara.....	E. H. Anderson..	Lockport.....	Feb. 1, 1913	13
St. Lawrence....	C. S. Phelps.....	Canton.....	Feb. 15, 1913	13
Cortland.....	E. H. Forristall..	Cortland.....	Feb. 24, 1913	13
Franklin.....	O. F. Ross.....	Malone.....	April 1, 1913	11
Monroe.....	L. A. Toan.....	Rochester.....	April 15, 1913	11
Wyoming.....	H. M. Bowen....	Perry.....	May 1, 1913	10
Onondaga.....	S. A. Martin....	Syracuse.....	May 1, 1913	10
Cattaraugus....	H. K. Crofoot...	Olean.....	June 10, 1913	9
Allegany.....	F. C. Smith.....	Wellsville.....	July 1, 1913	8
Dutchess.....	F. H. Lacy.....	Poughkeepsie. July	1, 1913	8
Oswego.....	H. M. Doyle....	Oswego.....	July 1, 1913	8
Tompkins.....	H. E. Babcock...	Ithaca.....	Dec. 1, 1913	4
Erie.....	W. L. Markham..	Buffalo.....	Feb. 1, 1914	2
Otsego.....	F. S. Barlow....	Cooperstown.. Feb.	1, 1914	2
Delaware.....	T. M. Avery.....	Walton.....	March 1, 1914	1
Montgomery....	A. S. Merchant..	Canajoharie... March	3, 1914	1
Cayuga.....	J. Robert Teall..	Auburn.....	April 1, 1914	
Ulster.....	Wallace Cook....	Kingston.....	April 1, 1914	

In addition to these counties, Lewis, Rockland, Nassau, Westchester, Wayne, Orleans and Columbia are considering the matter.

FINANCING THE WORK

The first Farm Bureaus organized in this state were principally by contributions from the National Government, from Chambers of Commerce and from railroads. The National Government is interested in promoting the movement as a means of bringing its large scientific staff into closer touch with farmers and farm conditions throughout the country. It is especially interested from the point of view of farm management in promoting better organized and more profitable farming. The Chambers of Com-

*Table has been revised and is complete to April 1, 1914.

†John H. Barron was agent here from March 20, 1911, to January 1, 1913.

merce and railroads contributing to the work are interested from the point of view of business institutions desiring to increase the total amount and quality of business in their respective territories, and of removing any economic handicaps to farming along their lines, within their power to remove. They are also anxious to promote the work from the unselfish point of view of helping to bring about better agriculture. Both institutions deserve great credit for their enterprise. It is not too much to say that without their financial aid and interest, the Farm Bureau movement would have been much longer in reaching its present status in this state.

With the example of the first three bureaus established in the state, much interest was manifested in the movement in the fall of 1912 and the winter following. The Crop Improvement Committee of Chicago offered financial aid and during 1912 they have contributed \$9,000 to Farm Bureau work in New York State. But the greatest impetus was given to the movement in this state by a bill drawn by the Commissioner of Agriculture and enacted into law by the last Legislature. This bill appropriated \$25,000 for Farm Bureau work, at the rate of \$600 for each county. The measure provides that the county must raise at least an equal amount of money, either through appropriations of its board of supervisors or by other means. At the present time the boards of supervisors are the largest local contributors to Farm Bureau work in this state. Appropriations in various counties vary from \$1,000 to \$4,000, the average being between \$1,500 and \$1,800.

The railroad companies of the state have been enthusiastic supporters of this work from the start. The Lackawanna Railroad Company contributes liberally to each of three bureaus along its lines, in addition to passes to the agents in their various counties. This includes two counties which do not receive the larger contribution. The New York Central contributes \$5 per month to each of the agents along its lines, together with a pass for each man in his own county. The Erie Railroad Company contributes a pass and \$10 per month to the agents in counties along its lines. The Ontario & Western pays \$5 per month and a pass to agents in counties through which it operates.

Individual local men have contributed comparatively small amounts, although the support of local men counts for much more

than the actual dollars which they contribute. Membership in Farm Bureau Associations, which is put at \$1 per year, is also adding to the local fund. I shall have more to say of this later.

The total moneys expended in New York State for Farm Bureau work during 1913 have been as follows:

United States Department of Agriculture.....	\$12,000
New York State.....	10,800
New York Railroad Companies.....	5,820
Chambers of Commerce.....	4,900
Boards of Supervisors.....	10,300
Crop Improvement Committee of Chicago.....	9,000
Individual contributions, including memberships in the Associations	2,400
	<hr/>
	\$55,220
	<hr/> <hr/>

The College of Agriculture has also contributed to the work in furnishing about one-third of the salaries of the State Director and the assistant to the State Director, all the stenographic help, office equipment, and an office from which the work is administered.

There is likely to be considerable change in the method of supporting Farm Bureau work in this state in the next year or two. The reorganization of the National Department of Agriculture is likely to result in the withdrawal of the present direct government support, although this may not be the case. The passing of the Smith-Lever Bill will provide a large Federal fund which may be used in part for Farm Bureau work. The disposition of this fund rests with the state, through its College of Agriculture. What part of it will be used for the direct support of local Farm Bureaus is a question yet to be decided. Undoubtedly, it is contemplated by the bill that some of the money will be so used. At least funds provided by this bill will probably be used to support the central office, and it is anticipated that the state will continue its present support.

Valuable — we might also say indispensable — as has been the support of outside institutions, it can not be expected that this support will be continued indefinitely. There is a limit to the extent to which public-spirited individuals and institutions can go. No

further funds are available during the present year, either from the National Government or from the Crop Improvement Committee of Chicago. Realizing this, plans are being laid to put Farm Bureau work on a permanent basis in this state, and so to organize it that its principal source of support will be the local people whom it chiefly serves.

It is, therefore, the policy of the central office in charge of Farm Bureau development in the state, and of the local management of the bureaus as well, to develop local membership. The average agricultural county in New York State contains between 4,000 and 5,000 farmers. There is no reason why at least one-half of these farms should not be represented in the local Farm Bureau by \$1 membership. This in itself should constitute the most important source of support in the future.

As our present law relating to Farm Bureaus (chapter 712, Laws of 1913), is now drawn, it authorizes boards of supervisors to appropriate money for this work where there is a demand in the county for it. In most cases, this is being very willingly done, but in a few instances political expediency or influence has interfered with the desires of the people of the county. For this reason, it has been suggested to the Commissioner and others that the law (this would probably include the Township and the Election Laws as well as the Farm Bureau Law) be amended so as to permit the towns and the county to vote on the question of whether or not money should be appropriated for Farm Bureau work, in case the boards of supervisors were not properly responsive to the desires of the people. My own feeling in the matter is that it is absolutely necessary that this work be kept perfectly free from any political influence whatever.

I believe also that the law should be further amended so as to make the amount appropriated by the state to each county dependent upon the amount raised by the county itself, providing that the total sum contributed by the state shall not exceed a certain per capita of rural population. I do not believe that the state should contribute more than one-fifth or one-sixth of the total bureau expenses, on the principle that the persons who benefit most from the work should bear the greater part of the burden of the expense.

Whether these are wise suggestions or not, we submit to you. Our sole aim and object in making them is to put Farm Bureau work on the fundamentally sound basis of self-help and self-support.

THE FUNCTIONS OF THE FARM BUREAU

As we have already pointed out, a Farm Bureau is an organization of the farmers of a county. It elects its own officers, usually a president, vice-president, secretary and treasurer, who is under bond. Its policies, lines of work and general methods are determined by a board of directors elected by the association. An advisory committee is usually appointed, representing every town in the county. Sometimes this committee is the board of control.

The board of directors chooses and appoints the county agent and fixes his salary. This agent has no official connection with any outside institutions, except that he has to be approved by the State Director, if the bureau wishes to receive state money and if the agent is to be appointed a collaborator of the United States Department of Agriculture so that he may receive the franking privilege.

There are some misconceptions as to the functions and the real purposes of the Farm Bureau. The greatest is that this institution has as its principal function, the giving of advice. Farmers to whom this idea has been advanced have very properly resented it and opposed a local bureau developed along this line. It is true that there is much call for this service and it forms a part of every county agent's work. It seems important that we be careful not to overload our county men with this feature of the work. It is not fundamental; it is often superficial and unnecessary because not complete or not followed out, and this kind of work alone would not justify the expense and the effort put into a county Farm Bureau.

It is highly important that this very practical phase of our agricultural development be started on right lines, and put on a basis which will make it a permanent county institution. This calls for a clear and definite conception of its functions by those who lead in the movement locally. Unless they have higher ideals and bigger pieces of work for the bureau and its agent to do than merely to give advice, for which the agent is often not so well qualified as

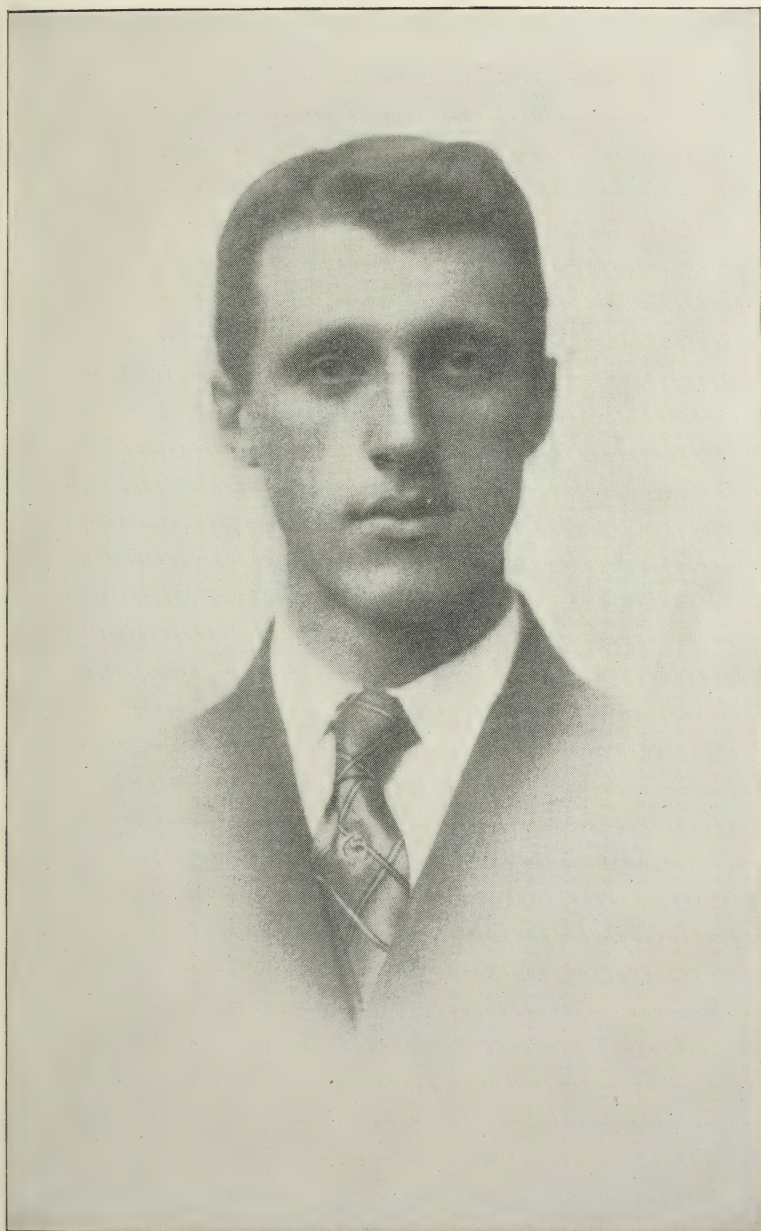


FIG. 249.—M. C. BURRITT, STATE DIRECTOR OF FARM BUREAUS.

the more highly trained specialists which we have already, the bureau had better not be organized.

As the leaders of the movement in the National Department of Agriculture, in the State Department of Agriculture, and in the State College of Agriculture conceive the functions of the Farm Bureau, they are, in order of their importance, as follows:

1. The federation and organization of all the agricultural forces of the county to a common purpose.
2. Agricultural leadership in its broad sense.
3. Organization of cow testing, seed improvement, and similar associations.
4. The organization of buying and selling agencies for supplies and products.
5. The study of the local economic conditions of the county with the viewpoint of affirming or improving, as the case may be, the local farm management and farm practice of the county.
6. The demonstration of better methods of farm management and practice.
7. The giving of personal advice to farmers on farm practice and farm management.

All these functions should be exercised with the view point of increasing the financial profitableness of farming within the county by increasing the net incomes of farmers, and of making country life and work increasingly worth while in the larger sense.

When we come to take an inventory of the forces which are working toward a better agriculture in the county, we find that they are many. In almost every county we find some department or agent of either the College of Agriculture, the Experiment Station or the National Department of Agriculture at work. In every county, Farmers' Institutes are held and in many, extension schools. Coöperative experiments of various sorts are frequently carried on. Every county has its local fair. In many counties we find boys' and girls' clubs. So also in almost every county we find a local agricultural society, a county grange and many subordinate granges. A large number of counties now have teachers of agriculture in one or more of their high schools. The agricultural and industrial agents of the railroads are endeavoring to improve trade conditions within the county. All these and many other agencies,

while they have the same general purpose in view, namely, the improvement of agriculture in the county, are not always working in close coöperation and without duplication of effort. A primary function of the county agent is to bring all these forces together in such a way that their efficiency in working out local problems will be increased.

In New York State, almost every community feels the need of coöperation. Many communities are now ready to coöperate. What is needed more than any other thing is leadership. A qualified man is wanted who can give a portion of his time and energy to developing and organizing coöperative associations, with the help of the State Superintendent and others interested in this phase of work. Such a man can not exercise this leadership alone, but he may be the agent of individuals or forces in a county who need just this man's help and energy.

No small part of the county agent's work, as I view it, is the organization of associations for the improvement of various phases of the county's farming. Perhaps the most notable among these, and the ones which have been best developed in this state, are the cow testing associations and the seed improvement associations. In several counties a number of cow testing associations have been promoted and organized by the county agents with the institutions of the state. A very successful potato seed improvement association has been organized in one of the counties.

A phase of the county agent's work, which is a most popular one with farmers but one in which great care has to be exercised, is the organization of buying and selling agencies for the securing of supplies and the disposition of products. It is a legitimate function for the county agent to encourage and to promote such organizations, when it can be clearly shown that they benefit the farming community as a whole. This is a matter, however, in which much judgment should be exercised. It seems wise to handle this work by means of committees of the Farm Bureau Association or by means of subsidiary coöperating companies. The county agent should never be asked or permitted to handle funds or to hold office in any organization for buying or selling for profit. He may, however, at all times advise as to methods, and counsel with committees and directors when his advice is sought.

The fifth function of the county agent, and a most important one, is the study of the local economic conditions of the county, with the viewpoint of affirming or changing, as the case may be, the local farm management and farm practice of the county. While this may be done to some extent by means of observation or talking with prominent farmers of the county, the safest and most conclusive way in which to get at the economic conditions of local farming is the farm survey. We believe that at least enough of this work should be done to give the county agent the point of view of the farm business as a whole. If he is able, without interfering with more important work, to collect statistics from a large number of farmers, he is afforded a valuable source of information in seeking the best plan of organization for individual farms. We do not think, however, that this type of work should occupy more than 10 or 15 per cent. of the agent's time.

The demonstration of better methods of farm practice and of farm management is a function of the county agent. We do not believe that he should be an investigator, except in so far as he may collect and digest local data and interpret local experience. It frequently happens that the demonstration of a method which is well known in the state at large or which has been clearly worked out by the Experiment Station, may result in calling the attention of the community to this method in a striking manner. A considerable amount of this work has been done by the local agents with very good results. While we do not regard it as the most important function of the agents, nevertheless it has much value in many localities and should be used wherever the benefits to be derived from it are clear.

The function of the county agent, which I have put last for reasons already set forth, is the giving of personal advice to farmers on farm practice and farm management. Probably more of this kind of work has been done by agents up to the present time than any other method of work. This has been because it has been demanded by people of the counties in which agents have worked, and because it has seemed necessary in order that the agents might get in closer touch with individual farmers and with their problems. It is a rather dangerous method of work. Few agents can understand the problems of an individual farmer as well as that farmer himself without giving considerable time and

study to them. Some kinds of advice may be given safely, such as how to spray, what to use, the liming of land, pruning of trees, etc. The kind of advice, the object of which is to materially change farm practice or management, should be very cautiously given. In all cases, when advice is given it should be with the point of view of increasing the profits of the year's business of the whole farm, rather than with reference to its effects on the profits of any single enterprise.

All of these functions should be exercised with the point of view of increasing the financial profitableness of the farming within the county by increasing the net incomes of farmers and with the viewpoint of making country life a work increasingly worth while in the larger sense.

This talk may have seemed to some too general. It has been made so purposely in order to bring before you the general methods of organization, financing, policies and functions of the Farm Bureau movement. The three speakers who follow me on this subject are all men who have had considerable experience in county work. They have made good in their counties and they will give you some of the details of their methods of work which will be more definite. We all recognize that very much depends on the man. Each of the county agents who will address you represents a little different method of work, each successful under local conditions.

MR. SISSON: We will now listen to some practical reports from the field. The first by F. E. Robertson, Field Agent of Jefferson County.

A BRIEF OUTLINE OF THE JEFFERSON COUNTY FARM BUREAU WORK

F. E. ROBERTSON

The Jefferson County Farm Bureau was inaugurated April 16, 1912. It has been in operation, therefore, during the past twenty months.

In the beginning the Farm Bureau idea was new and the best methods for the county agricultural agent to attack his local work were not known; in fact the best methods, if there are any best, are not yet known, although we may now have a clearer conception

of some lines of work that the county agent should do in the beginning. As the agricultural practices in every county differ in some respects from those in another, and as the men who become county agents may have different capacities for doing work, the methods employed in carrying out the work in different counties will differ more or less.

In beginning the work in Jefferson County, our first plan was to become intimately acquainted with the people and agricultural conditions. This was accomplished at first by visiting the various granges and driving about the county for a few weeks. As the requests from the farmers to visit their farms and to advise with them regarding many different lines of work, were numerous to begin with, much of our means for getting acquainted has been accomplished in this way. The practice of visiting individual farms has been followed, however, only after receiving a request from the owner for such a visit, or except where some farmer was doing something particularly commendable, in which case visits were made for the purpose of securing information.

In order to acquaint the farmers quickly with the nature and purpose of the bureau, placards were printed and hung in the grange halls, railroad stations, post offices, etc., throughout the county, briefly announcing the Farm Bureau and its purpose. To a limited extent circular letters were also used for this purpose.

Conditions in Jefferson County have not been such, since the Bureau was inaugurated, that we have had to look for work. There has always been more requests for cooperation, conference and advice than we have found time to look after as closely as we would liked to have done.

In Jefferson County it has been the plan of the bureau to teach by the demonstration method. Careful investigational studies have not been carried on to any extent for the reason that we were fairly well acquainted with the average farm practice, and because of the fact that the State College of Agriculture had formerly carried on a farm survey over the important towns in the county.

We do not plan to experiment for the reason that we are not in position to exercise the technical care in checking the work that should be done in experimental work. We have tried to put into practice the best known methods of farm practice and farm management and to demonstrate the local application of these prin-

ciples on farms in different parts of the county. If the average farmer could be induced to practice the better known principles of farm practice and management as we now know them, his efforts would be rewarded with greater returns and his standard of living raised. For this reason we feel that we should try and perfect our practices to conform to the best we now know, rather than begin to search for other methods and factors, at the expense of neglecting to put into practice common principles of agriculture we know to be right.

Our coöperative field demonstrations are arranged during the winter months very largely. At this season of the year we have time to discuss the ways and means for doing better work. With those farmers who evince the greatest interest, arrangements are made to carry on some one or more lines of field work for the purpose of determining whether better results may be obtained. We aim to make each field demonstration an object lesson. As a rule the results secured from these field demonstrations are checked up as closely as possible under the conditions, and the results published in the county papers, and in the form of what we call local bulletins. These local bulletins are reprinted annually, showing the progress made with a particular line of work, and are mailed to several hundred farmers throughout the county. The purpose of these local bulletins is simply to tell briefly the work done, the results secured, and to point out the local application of the principles involved. They are not intended to repeat matter that has been published elsewhere. They assist materially in spreading the information rapidly and cheaply.

The local county papers are made use of to a large degree. Through these mediums are published timely articles calling attention to various matters agriculturally. The county press, as a rule, is pleased to secure this material, and in this way ideas are disseminated rapidly.

Jefferson County is a very strong grange county. The bureau works closely with the granges in many lines of work. With thirty-three subordinate granges in the county we manage to visit each at least once a year. On all such occasions, when requested to speak before these organizations, we strive to illustrate our talk with materials intended to show practical methods for doing better work. These object lessons are appreciated.

So, too, use is made of the stereopticon lantern to illustrate an evening lecture. Lantern slides are made of the work being done within the county, which, owing to the fact that the picture may have been taken in the vicinity, adds interest to the topic.

Through the medium of the Farmers' Institutes much coöperative and follow-up work is carried on. It does the farmer but little good to attend an institute unless he takes away with him a new idea that he will put into practice on his farm. The Farm Bureau plans to get hold of as many farmers as possible during the institute sessions for the purpose of pledging or encouraging them to practice some of the principles with which they have become acquainted. In these instances we assure the farmer our coöperation and support.

Up to the present time, in Jefferson County, we have not found time to do much in coöperation with the county school superintendents as regards visiting schools. It is doubtful whether we will have time for this line of work. One line of work we have done, however, is that during the past season, together with the school superintendents, we successfully carried on our first farm boys' corn growing contest. This line of work with the young people has resulted in much good feeling. We expect to carry it on with greater vigor another year, placing the work largely in the hands of the school superintendents.

It would seem that coöperation with every agency or organization extant, within limits, should be an important point for the county agricultural agent to keep in mind. It is one of the policies of this bureau to try to secure and make use of the specialists in agricultural matters from the Federal and State Departments of Agriculture, and from the State College and Experiment Stations for the purpose of bringing into Jefferson County, and encouraging our farmers to practice, the best known methods. We are constantly referring the more technical questions to the specialists, or requesting their presence in the county to inspect conditions and give advice regarding the more technical matters. In this coöperation we make use of the other fellow. Stated in another way, our point of view is that nothing, agriculturally speaking, is too good for Jefferson County.

What does it matter who gets the credit so long as the work is well done? There is a great deal to be accomplished by making

the other fellow believe that he is doing the work and getting the credit. In Jefferson County we strive to make use of the other fellow and let him have the credit.

The chief agricultural problems of the county, from a general point of view, have to do with maintaining and increasing the soil fertility from which crops are grown to sell, and with increasing the productive powers of the dairy herds from which the greater portion of the farm income is derived.

The cropping system has been such that the soils in many instances have become partially impoverished. One of our problems is to encourage a system of cropping that will at least maintain average production of hay, grains, and corn.

We are attempting to bring this about by encouraging the growth of more leguminous crops, drainage, lime, and fertilizers judiciously employed.

About 80 per cent. of the total average farm receipts in the county is derived from live stock and stock products, chief of which is dairy products. Any material increase in the production of dairy products per cow will materially increase the income to the farmers. With this in mind we are encouraging the practice of keeping production records with the cows for the purpose of eliminating the low producers and less profitable animals from the average dairy herd. Three cow testing associations have been organized during the past year. While this is but a small start, when it is considered that in the county there are over 66,000 dairy cows, it is nevertheless a beginning.

The use of herd bulls with known breeding for production is also being urged.

The growing of legumes and early maturing silage corn for the purpose of cheapening the cost of milk production from the standpoint of feed cost is being urged. The vetches and soy beans, during the past year, have become very commonly grown and promise to add materially toward a better and cheaper feeding standard.

While it is quite possible to prove to the farmers that by reorganizing their farm business they would be enabled to make larger incomes, we find that they are sceptical or unwilling to make a serious effort to effectively carry out the things necessary for them to do in order to make this larger income.

For example: We have excellent evidence that the farmers who are making labor incomes above the average in the county are doing three things.

1. They are farming larger farms than the average,—over 143 acres.
2. They are keeping better cows than the average.
3. They have several important sources of income in addition to that derived from sales of milk and hay.

Expressing this in terms of dollars it would read as follows:

Average labor income (670 farms, average size 143 acres), season of 1910	\$609
Average labor income, 23 farms, best cows and crops.....	994
Average labor income, 71 farms of over 200 acres in size.....	1, 044
Average labor income, 31 farms over 200 acres with best cows and crops	1, 567
Average labor income, 13 large, diversified, best cows and crops....	1, 968

In spite of this evidence, few farmers are going to increase the size of their farms; perhaps a few will endeavor to keep better cows; another few will see the advantages to be derived from greater diversity of occupations; some may work into a combination of these factors, but the majority will always be with the average and will make a labor income somewhere between \$400 and \$600 per year.

The purpose of this report is to briefly tell how some of the work was begun and what methods were employed in doing it. For the sake of brevity, therefore, the different lines of work undertaken, accomplished, and that are under way will be epitomized as follows:

DIFFERENT LINES OF WORK IN PROGRESS, AND COMPLETED

1. Organized three Cow Testing Associations,—sixty herds,—1,325 cows.
2. Established a Live Stock and Seed Exchange—beginning January 1, 1914.
3. Organized a Farm Boys' Corn Growing Contest,—ninety-two boys participating. Raised over \$200 for prizes in this connection.
4. Held one Extension School of Agriculture. Coöperation State College.

5. Engineered two Farm Boys' Stock Judging Contests at county fair.
6. Farmers visited on their farms,—over 1,200 in twenty months.
7. Addresses given before farmers' meetings and granges, twenty months, 125.
8. Field demonstrations, 1913,—18, reaching 360 farmers.
9. Published local press articles,—twenty months—seventy-five.
10. Published four local bulletins, and six circular letters.
11. Coöperated with State College in plant improvement demonstration train through county, one week, reached 1,650 farmers.
12. Took part in eighteen Farmers' Institutes,—twenty months—reached over 1,800 farmers.
13. Breeding heavy yielding types of hay,—past twenty months—twenty-five farmers.
14. Seed improvement with potatoes,—tuber-unit work, 1913, thirteen farmers.
15. Corn variety tests, 1913, three farmers.
16. Field trials with soy beans for seed and with corn, 1913, twenty farmers.
17. Field trials with winter vetch, 1913, eight farmers.
18. Orchards pruned and sprayed, 1913, three farmers.
19. Weed spraying demonstrations,—in oats, 1913, four farmers.
20. Pasture improvement begun,—reseeding, 1913, five farmers.
21. Fertilizer work, topdressing meadows, 1913, six farmers.
22. Oat smut and variety tests of seed oats, 1913, twelve farmers.
23. Alfalfa—variety tests—Grimm and Turkestan, twenty months, five farmers.
24. Cropping systems planned and followed, eight farmers.
25. Soil improvement work started,—green crops plowed down,—three farms.
26. Lime demonstrations begun and under observation for results, six farms.
27. Farm accounting systems begun past twenty months, five farmers.

28. Drainage systems planned and demonstrations given, 1913, three farmers.
29. Through Farm Bureau Labor Exchange, assisted more than 150 farmers in securing laborers.
30. Numerous lines of work of greater or less importance.

MR. SISSON: A very illuminating report of actual accomplishment. We will have two other short reports and I want to say that we will have to confine the young men to not over 5 or 6 minutes each.

We will now hear from George W. Bush, Field Agent of Oneida County.

MR. BUSH: As I have only five minutes to speak, if any of you are interested in knowing what we are trying to do in Oneida County, we have here a few pamphlets which you are entitled to have.

FARM BUREAU WORK IN ONEIDA COUNTY

G. W. BUSH

This bureau installed a representative in the field November 1, 1912. The first two weeks were spent in getting familiar with the methods of operation pursued in other counties. Some further time was spent in getting familiar with the county and becoming acquainted with the people and their problems.

ORCHARD WORK

The first direct work was started with several orchards that had long since begun to decline. Eight of these were secured for co-operation, but owing to the inability of the owners to get the work done, only five completed the pruning.

In pruning, care was taken to remove all dead wood and all superfluous branches preserving at the same time as many of the lower limbs as possible. Usually six or seven main leaders were left, with enough side branches to fill in uniformly all the space above and below; in many cases the amount removed exceeded the amount left. In doing away with this surplus wood great care was taken to make the cuts very close and to paint them over with some cheap lead and oil to insure quick and perfect healing.

All of these orchards were sprayed with a dormant spray for scale, etc., before any growth started in the spring and again with

lime sulphur and arsenate of lead, summer strength, for moth and scab, just as the petals were falling from the bloom and then again in about ten days. A June frost injured several of these orchards at this time, causing most of the blossoms to fall. However, five had already been plowed and manured and were harrowed occasionally until July 1, when clover was sown. As a result, the trees have grown an abundance of young wood and buds. They carry a deep green foliage and are now standing ready to give a good yield next season. Two of the orchards mentioned, which were very carefully tilled, were in a somewhat sheltered locality and were too far advanced to be seriously injured by frosts. They have yielded from twenty-five to thirty bushels to the tree, or, in one case, 1,000 bushels and in the other nearly as many again. The apples from one of these orchards were packed in hampers in three grades and are selling for \$1.50 per bushel for No. 1, \$1.25 for No. 2 and \$1.00 for No. 3. Practically 98 per cent. have a diameter of greater than $2\frac{1}{2}$ inches and are free from scab and worms. As the crop is not all sold it is impossible to give the net results from this work. However, it is fair to say that it will be approximately \$26.00 per tree, after the cost of pruning, manuring, cultivation, spraying, clover seed, picking and marketing is deducted. There are 100 trees in the orchard, 40 of them in bearing this year.

It might be of interest to state here that through the work instituted by the Farm Bureau in the orchards, and as a result of meetings, personal visits and agitation, one company that had never sold lime sulphur or arsenate of lead before disposed of over 500 gallons lime sulphur solution, 500 pounds soluble sulphur and over 200 pounds of arsenate of lead during the past season. During the same period at least three other companies dealing in the same chemicals sold a considerable quantity of lime sulphur and arsenate of lead in Oneida County. On account of the unusually late frost much of the material was wasted. The same should mean a good many dollars' profit in any ordinary year.

MEETINGS

During the first year of the Farm Bureau, meetings have been held in various parts of the county and two general county meetings have been held with several hundred in attendance. On three

occasions, the Farm Bureau's representative has spoken, by invitation, at meetings in different parts of the state, outside of the county. At the Oneida County meetings the subjects discussed were, for instance, lime and liming, rations, fertilizer, orchards, with special reference to renovation of old trees, and spray with reference to potatoes. In fact, at the different gatherings nearly all subjects of interest to the farmers have been treated. The meeting places have been open fields, farmers' homes, school houses and town halls. The total number of these meetings was thirty-four and the average attendance sixty-one.

Following is a table showing the visits made to the individual farmers in different towns and the subject under discussion. Many of these visits resulted in cooperation between farmers and the bureau. The table indicates a wide degree of interest, including besides those enumerated; meadows, berries, poultry, weed extermination, silos, soy beans, cannery crops, and horse breeding, assisting purchasers and sellers of pure-bred live stock, dynamiting soil and seeking farms for strangers in the county. In making the visits 1,565 miles were traveled by automobile, 1,437 by horse, and 3,410 by railroad. Estimated number of callers at office, 300; inquiries by mail and telephone, 500.

COW TESTING ASSOCIATIONS

During the winter and spring of 1913 about three weeks were occupied by the Farm Bureau in forming cow testing associations. There are now three of these organizations in the county. The oldest, known as the Waterville Cow Testing Association, was formed before the Farm Bureau came into existence. The others, known respectively as the Westernville Cow Testing Association, under the leadership of Thomas M. Carroll, of Western, and the Knoxboro-Deansboro Association, carried on by John D. Ludeman, of White Plains, were formed by the Farm Bureau in coöperation with the New York State Department of Agriculture. These associations are doing excellent work and letters come in repeatedly from individual members speaking in high terms, and from experience, of the results that are bound to come. At the present time, requests are on file from two other sections, asking that associations be formed there. This will be done as soon as the press of fall work is ended.

The plan of this work is, wherever possible, to have the farmer weigh the milk each day. The tester visits the farm one day each month and, unless done by the owner, he, the tester, weighs the milk, testing it for butter fat, weighs the feed, computing from the result the cost of maintenance, and the net revenue. This makes every individual cow stand on her own merits and by this method the robbers and boarders can be easily cut out from those that pay. There are about 1,500 cows on this sort of a business basis in the county. Besides this, in some instances the associations are doing semi-official testing for pure-bred herds under the rules of the different pure-bred associations.

A FAIR PRICE FOR LIME

Perhaps the greatest work done by the Farm Bureau and its friends is that of establishing a proper price for lime in Oneida County. The established price for lime in Oneida County previous to the installation of the Farm Bureau ran from \$4.00 to \$7.00 per ton. One of the Bureau's first tasks was to investigate this unfair situation. After a thorough search a bottom price was secured through the Rock Cut Stone Company of Rock Cut, N. Y. This firm was willing to furnish limestone, ground fine and analyzing 90 per cent. total carbonates, for \$1.35 per ton f. o. b. at quarry. Next we found that the Delaware, Lackawanna & Western Railroad, controlling transportation from the quarry, were charging an irregular rate on ground limestone, unintentionally discriminating against several towns in the county. At this point the Farm Bureau, in connection with the Utica Chamber of Commerce, took the matter up with the Delaware, Lackawanna & Western Railroad. The railroad was fair in the matter, and as a result no place along the lines of the Delaware, Lackawanna & Western Railroad in Oneida County has a rate on ground limestone exceeding \$1.00 per net ton in carload lots. Later, through the assistance of Mr. Welsh, Agriculturist of the New York Central & Hudson River Railroad, and the Sugar River Stone Company of Boonville, N. Y., we were able to secure lime, ground fine and analyzing 95 per cent. total carbonates for \$1.35 per net ton on cars at quarry. The New York Central & Hudson River Railroad has reduced the rate 30 per cent. on car shipments from all quarries that charge less than \$1.50 per ton for ground limestone.

This lowers the price of ground limestone so that at no station on these railroads in Oneida County a farmer need pay over \$2 35 per ton for good ground limestone delivered in carload lots. At many of the stations it is less than \$2.00 per ton delivered. In the short space of time these improved rates have been in force, over thirty cars have been delivered, and orders for twelve cars additional were cancelled because of shortage of cars. A much larger amount will be delivered the coming winter and spring.

The Farm Bureau carried on several coöperative tests with the use of fresh-burned lime and ground limestone on clover seeding at time of sowing. These fields are in widely separated parts of the county and represent many varied conditions. While next year will be the time to find out whether the lime is beneficial or not, it is safe to say that nearly all these fields are looking promising at present.

POTATOES AND CORN

The Farm Bureau has also carried on coöperative work on potatoes. One plot has been used for the purpose of improving seed by breeding and selecting. A variety of blight resisting potatoes was planted on May 5 to breed from. They were cut into two eyes and the pieces from each potato planted separately in adjoining hills in order to determine the yield from each potato. At harvest the product from each potato was weighed and kept separate and all plants producing over six good tubers kept for the breeding work next year, discarding the product from any individual hills that seemed to be inferior. This field was planted on sod in a small orchard, manured at the rate of fifteen loads per acre with fresh horse manure and 250 pounds per acre of a 1.65-8-10 fertilizer. We realized at that time that a 1.65-8-10 was not considered a proper fertilizer for potatoes, yet locally we were unable to secure a better grade. These potatoes were planted here in the young orchard as much to give the young trees tillage and fertilizing as for the crop of potatoes. We might add here that, besides the crop of potatoes, which yielded at the rate of 242 bushels marketable potatoes per acre, we have growth on our trees three years from setting of from fifteen to twenty-four inches of new wood. The potatoes were sprayed with Bordeaux mixture five times; this, together with cost of tillage, manure, fertilizer, harvesting, inter-

est, etc., brings the cost per acre, in this case, up to \$60. At the rate of \$1.00 per bushel, the net income per acre of potatoes will be \$182. These potatoes were cultivated six times during May and June and hilled with a horse July 8. They were not hilled by hand.

Besides this field, coöperative spraying with Bordeaux mixture for blight was undertaken in several other fields. Blight was not serious this year, striking only in spots. One of the important coöperative spraying fields was located in Paris township. Here a field of five and one-half acres was sprayed with Bordeaux mixture and four rows through the field were left. The soil was the same and otherwise the treatment was the same in fertilization, cultivation and tillage. The yield on the unsprayed rows was at the rate of 144.7 bushels per acre and on the sprayed rows next, the yield rate per acre was 190.36 bushels. The total cost per acre of spraying five times from June until September, was \$6.75. It can be seen that the difference in yield per acre, as shown from this, was 45.6 bushels or at \$1.00 per bushel, a difference in net income of \$48.91 per acre.

In our work in committee last spring, through the coöperation of District School Superintendent Ray P. Snyder, seventy-five "Rag Baby" seed corn testers were placed in forty-five different schools about the county and used for the good of the schools and neighborhoods in which they were located. We also sent out bulletins through the newspapers in the early spring, urging farmers to test their seed corn before planting.

The bureau planted one small field of approximately one-half acre, ear to row method. The seed was tested and the kernels of no ear that would not germinate in excess of 90 per cent. were planted. First, rows from 1-18 were planted from seed from ears 1-18, the number of the ear corresponding with the number of the row. Then starting with ear 1 and going to 18 again, rows 19-38 inclusive, were planted. The variety used was Luces' Favorite, a silage corn. It was planted $3\frac{1}{2}$ ft. x $3\frac{1}{2}$ ft., three plants in a hill, with intention of growing silage seed in this altitude and latitude. It is a well known fact that too much half-grown watery corn is used for ensilage in this section, and that an effort should be made

to induce the farmers to grow a corn which will not only give a maximum of dry matter, but a quantity of good mature ears.

This corn was planted May 12 and came up with but one skipped hill. Seven loads of horse manure and 200 pounds of a 1.65-8-10 fertilizer were used on the field, which approximates a half acre. It was cultivated eight times from May 20 to July 15 and hand hoed once. No weeds were present, and the corn was kept growing all the time in spite of the drought. This corn furnished a mature stalk ten feet high in the better portions, each stalk bearing an ear that showed maturity the first week in September. It is now in the shock and no weights have been made so far. This will be done later, and the most mature specimens from the highest producing mother ears will be preserved for seed.

FERTILIZERS

We had three coöperators with fertilizer, one with nitrate of soda on timothy hay, one with nitrate of soda on hops and one with various amounts of home mixed fertilizer with different proportions of nitrogen, phosphoric acid and potash. The last was undertaken late on a very poor field and, owing to the dry season, very little became available. The nitrate of soda on the hay was applied broadcast on May 26 at the rate of 150 pounds per acre, and cost \$4.50. The yield of hay was eight tons of field dried hay No. 1 timothy from 1 3-5 acres. The yield per acre was 5.7 tons, or 1.7 tons increase over 1912 when no nitrate of soda was used. Allowing one-third for shrinkage, the yield of mow-cured hay would be 3.8 tons, or 1.1 tons increase over 1912. This would point toward the value of the use of nitrate of soda on timothy, especially where there are plenty of good plants. The hay over the field was fine, over four feet high, and when cut lay so thick on the ground that it was almost impossible to rake.

The nitrate of soda was sown on the hops at the rate of 100 and 200 pounds per acre at different dates, June 16 and July 1. At picking, the difference was not very apparent between the treated and the untreated. The whole field was in excellent state of tillage and fertility; all were well filled. While the results were not very pronounced in this case, we are of the opinion that

on a field which is not regularly fertilized with barnyard manure, the yield would be increased materially.

We also tried nitrate of soda on raspberries at the rate of 200 pounds per acre just after they were set. The season was very dry, yet the crop was good. No checks were left, so that it would be impossible to tell to what extent the nitrate was of benefit.

The Farm Bureau has interested several, who were short of barnyard manure and had semi-abandoned fields, to sow rye and vetch for the purpose of plowing under. In some cases the land was limed and inoculated; in some cases limed and not inoculated. In other cases neither lime nor inoculation was used. This will afford an opportunity to note the value of lime and inoculation on vetch. This crop, in most cases, will be plowed under next May or June. Besides the vetch for plowing under in open fields, we have used it in a small way on a field of raspberries. Of course, it is too early to tell anything definite about this. Several packages of soy beans, vetch and alfalfa were received by different farmers in the county, through the courtesy of Congressman Charles A. Talcott, who wisely gave up half of his allotment of garden seeds and sent, instead, considerable amount of seed of these valuable forage and nitrogen-gathering crops.

QUACK GRASS ERADICATION AND DRAINAGE

We have at least two different coöperators who were trying the department methods of quack grass eradication — that of plowing in July and August and harrowing weekly through until fall. This seems to work well. We have also helped lay out several drainage propositions, and have secured a promise from the Agriculturist of the New York Central & Hudson River Railroad that he will send a new gasoline ditcher to our county to dig several hundred rods of ditch early next spring.

PUBLIC EXHIBITS

The Farm Bureau has endeavored from time to time to furnish the various papers, both daily and weekly, with seasonable articles on various farm operations. The aim has been to adapt these articles to local problems. Among articles published were those

on lime and its uses, renovating old orchards, alfalfa and how to grow it, Bordeaux mixture for potatoes, etc.

At three of the fairs in the county we helped to supply exhibits of an educational nature. At the Rome Fair we helped put through a movement to conduct a Cow Testing Contest for the three days of the fair. This was under the management of Mr. Thomas M. Carroll of Western (Cornell Agricultural College, 1911), who for the past six months has very ably conducted the Westernville and Avâ Cow Testing Associations. The contest was conducted during the time of the fair; a first prize of \$10, and a second prize of \$5, was given for the cows making the most butter fat during the three days of the fair. All cows were milked dry at the beginning and all closed at exactly the same time, all breeds competing. The first prize was won by B. T. Boyson, R. F. D., Rome, N. Y., on the pure-bred Holstein cow, Fantesy Carlotte 2nd Hengerveldt, No. 108522. The second by a pure-bred Holstein cow, owned by Virgil Smith, R. F. D., Rome, N. Y. At the Paris and Vernon Fairs, we displayed two boxes of fine apples grown in the town of New Hartford, showing the result of tillage, fertilizer and spray. Along with these we displayed the ordinary apples from neglected trees to show the effects of lack of vitality and too many limbs, together with marks of scale, scab and codling moth. With these we displayed two hampers of potatoes, showing the increased yield of sprayed over those not sprayed with Bordeaux mixture. Exhibits from the orchards under our care took prizes wherever they were exhibited.

FARM LABOR

We have endeavored to help those who applied to us for farm labor. The New York State Department of Agriculture maintains an office for the purpose of securing farm help among the foreign laborers in New York City. Through this office we have secured about twenty-five. Only four of this number, so far as we have been informed, failed to be satisfactory. Record is kept in the New York office of all sent out, so that the second time they apply for work it is understood whether or not they can be recommended.

ALFALFA

Another important thing that the Farm Bureau has done this year is to coöperate with farmers in different parts of the county in the growth of alfalfa where it does not grow naturally. In all, we sowed six fields in June and four in August, varying in size from one-half to two acres. In our June sowing we plowed a corn stubble in the fall, manured during the winter, limed early in the spring with either fresh-burned or ground limestone, harrowing into the soil as we fitted the fields. We began harrowing early and kept this up from time to time until the middle of June, when we sowed 400 pounds per acre of soil from a good alfalfa field, taking care not to expose it to the sun. After this was well harrowed in, we sowed from the grass seeder of a grain drill thirty pounds per acre of good alfalfa seed alone and then rolled. All of these fields have been cut once and some twice, and left on the field during the past seasons, and all are going into the winter in excellent condition. In the August sowing we plowed corn ground in the fall, limed with ground limestone or fresh-burned lime in the early spring and sowed to early peas. These came off in early July and the fields were plowed again and manured with barnyard manure and harrowed several times between then and August 10, when 400 pounds to the acre of soil from an old alfalfa field was sown with the same care as before. Following this, seed was sown and rolled as in June sowing. These fields all look well, though the growth is not as hardy to stand the winter as the June sowing.

SUMMARY

It would seem that the bureau has been of real practical use during the past year and that there is considerable direct financial benefit that the farmers have received. As, for example, we would point to the rates on lime, to the success with alfalfa, apples and potatoes. However wide our acquaintance may be and whatever results may have been accomplished, we hope to reach out farther during the coming year and increase our endeavors along these same lines.

MR. SISSON: We will now listen to the field report of G. P. Scoville, Field Agent of Chemung County.

THE SURVEY METHOD OF FARM BUREAU WORK AS APPLIED IN
CHEMUNG COUNTY

G. P. SCOVILLE

The method as developed and perfected by Professor Warren of summarizing a farm business for the purpose of finding the labor income of the farm operator has been of considerable use to our Farm Bureau.

By this means we have become acquainted with the farmer and his business in a rather complete way. The record also helps the farmer to become better acquainted with his own business. We return a summary of the record similar to these charts to the farmer.

The factor of most interest to the farmer and the agent is the "labor income." The labor income represents what the operator of the farm receives for his year's work. This farmer (see chart 1) has a labor income of \$41. Subtracting his expenses of \$993 from his receipts of \$1,348 leaves \$355 as income from the operator's labor and capital. The interest on the investment of \$6,282 at 5 per cent. is \$314 and subtracting this from \$355 leaves \$41 as his labor income.

On the other side of the outline returned to the farmer are averages for comparison. The average labor income of 270 hill farms is \$238. Of these 270 farms, sixty-one made a labor income of minus \$173. There are forty-five of these farmers that made a labor income of over \$500, averaging \$858. This gives a scale or standard for comparing farms. The agent and the farmer thus know that on the hill lands in Chemung County about one farmer in six is making a labor income of over \$500. They also know that the average hill farmer is making \$238 a year and that one farmer in four or five makes less than the 5 per cent. interest and nothing for his labor. The farmer from whom this record was taken can see that the average farmer is making six dollars to his one. His business has been measured and both the farmer and the agent now know how successful it is and how it compares with the average, the best and the poorest farmers in his vicinity.

It is a comparatively simple matter to analyze or factor a farm business and find the causes for success or failure. It is easy since in practically all cases there are but four factors or conditions, any

of which if deficient may cause failure. These factors are Size, Diversity, Productiveness, and Labor Efficiency.

Let us compare this farm with the three groups in respect to these factors. The best measure of size is the ten-hour man work days necessary to raise the crops and care for the productive stock. On the average farm there are 277 such work days while the most successful farms have 454 and the poorest 237. The larger profits are made on the larger farms. This farm has a size a little better than the average. The number of crop acres are sixty-one on this farm as compared with eighty-nine on the best farms, sixty-nine on the average and sixty-eight on the poorest. The number of cows on this farm are twelve while the best have twelve, the average seven and the poorest six.

The question of "Diversity" on these farms is principally one of combining cash crops and stock. This farm has only nineteen work days on cash crops while the best have 118, the average sixty-three and the poorest thirty-nine. This farm has 299 work days on stock as compared with 336 on the best farms, 214 on the average and 198 on the poorest. This farmer devotes only about 5 per cent. of his time on cash crops. This is altogether too little.

The next heading, "Productiveness," shows that the returns from cows on this farm are better than the best. The average cattle unit produces \$45; ten of them produce \$450. On the best farms seven cattle units make as much while fourteen are required on the poorest farms. It requires only six cattle units on this farm to produce an equal amount. The gross income per stock work day is also larger on this farm than the average of the best.

The crop yield on this farm is about average, as ninety-eight acres produce as much as 100 average acres. On the best farms it requires eighty acres, while the poorest require 118 to produce an equal amount. The income per cash crop work day is very low on this farm because nine days were spent on growing three-fourths of an acre of potatoes, all of which were consumed on the farm. The average for the best farms is \$6.14 per cash crop work day.

The last heading is called "Labor Efficiency." The expense, except operator's time per work day, is large on this farm. Considerable feed was purchased and labor expense is excessive. On

the average the expense per day increases slightly as the per cent. of stock work increases. The gross income from a stock work day on this farm is twenty-one cents larger than this expense. The farmer and agent now know that for every productive work day on stock the operator could not have received for his time and profit more than twenty-one cents per day. The average is forty-one cents. The average receipts per cash crop work day are six times larger, being \$2.41. This farmer did not spend any time, however, growing crops to sell.

There are 187 work days per man on this farm. The average farm has 198 work days per man while on the most successful farms there are 267. This is eighty more per man than on this farm. Dividing the labor income by the number of work days per man shows that the average farm operator received \$1.20 per work day. The most successful farmers received \$3.21 and the poorest minus \$1.17. This farmer received only twenty-one cents per work day.

From the outline the cause of this farmer's failure is clear. The greatest weakness in his farm business is the lack of cash crops. This can be remedied by adding more crop acres to the present business either by renting or buying more land. If this is not practical and he does not wish to change farms he should probably reduce his stock to perhaps six cows and spend 100 or more work days on cash crops. The size of his business would be increased with profit and more crop acres would be the most desirable change. More work per man ought also to be obtained.

Another farm located in similar conditions is No. 2. The size is about the same but the diversity is much better, having only half as many cows but 139 days' work on cash crops. The quality of cows is just as good but the crop yield is not. The expenses are little less, not as much capital and less feed purchased. The hired help did not cost quite as much. This farmer made \$1.34 per stock work day and \$2.08 per crop work day. The work per man is about the same. This farmer made a labor income of \$467 or \$2.54 for each of his work days. His business compares in size and quality and work rate with the other farm, but because he diversified he made ten times as much money. The weakest point in this last farmer's business is the small size.

A little over 400 such survey records have been taken in Chemung County and returned to the farmers. To thus study a farm business, measure its success and find the remedies for improvement has been our principal work.

CHART I

A CHEMUNG COUNTY HILL FARM

Area 114 acres.

CROPS, 61; WOODS, 10; PASTURE, 40;

WASTE, 3.

Farm	\$4,530
Tools	290
12 cows	480
5 other cattle.....	103
4 horses	400
1 brood sow.....	35
100 hens	75
Hay and feed.....	269
Cash	100

Total capital \$6,282

RECEIPTS.

6 bu. apples, at 75c..	\$5
5 bu. buckwheat, at \$1	5
Strawberries	3
Increase feed.....	62
Market milk, at 3¼c. 1,000	
11 pigs, at \$2.....	22
Cattle increase	71
Eggs	100
Poultry sold	40
Team work	40

Total receipts \$1,348

CROPS.

	Acres.	Yield per acre.
Corn	10	25 bu.
Potatoes	¾	40 bu.
Rye	1½	12 bu.
Oats	10	15 bu.
Buckwheat	4	36 bu.
Hay	35	.7 ton
Apple (orchard)	4	13 bu.

Crop acres 61

EXPENSES.

Labor	\$250
Machinery	30
Fence	16
Feed	560
Horseshoeing	20
Seeds	40
Taxes	42
Miscellaneous.....	35
Total expense	993

Income from labor and
capital \$355

Interest on capital..... 314

Labor income \$41

CHART II

COMPARISON OF CHEMUNG COUNTY HILL FARMS

	Farm No. 1	Farm No. 2	Average 45 best farms	Average 270 farms	Average 61 poorest
Labor income.....	\$467	\$41	\$858	\$238	\$—173
SIZE					
Man work days.....	295	318	454	277	237
Crop acres.....	69	61	89	69	68
Cows.....	5½	12	12	7	6
DIVERSITY					
Work days on cash crops and outside work.....	139	19	118	63	39
Work days on productive stock and crops fed.....	156	299	336	214	198
PRODUCTIVENESS					
Cows:					
Receipts per cattle unit.....	\$70	\$73	\$65	\$45	\$32
Number of cattle units necessary to produce \$450.....	6	6	7	10	14
Income per stock work day.....	\$3.87	\$4.12	\$3.71	\$2.94	\$2.13
Crops:					
Acres necessary to produce as much as 100 average acres.....	115	99	80	100	118
Income per cash crop work day...	\$4.61	.....	\$6.14	\$4.94	\$4.03
LABOR EFFICIENCY					
Interest expense per work day.....	\$0.73	\$0.99	\$0.77	\$0.89	\$1.06
Other expense except operator's time per work day.....	1.80	2.92	1.68	1.64	2.74
Total expense except operator's time per work day.....	2.53	3.91	2.45	2.53	3.17
Income per stock work day minus expense.....	1.34	.21	1.26	.41	—1.04
Income per cash crop work day minus expense.....	2.08	.....	3.69	2.41	.86
Number men.....	1.6	1.7	1.7	1.4	1.6
Work days per man.....	184	187	267	198	148
Farm operator's profits and pay per work day.....	\$2.54	\$0.21	\$3.21	\$1.20	\$—1.17

MR. DATUS SMITH: Fault finding is so usual and often so ungracious a thing that it is with great diffidence I rise to make a suggestion for the improvement of our meetings in the future and it is: Do not have them so full of program. Every man here knows that the most intelligent paper that can be read is enhanced in value if it can be intelligently discussed, and we have no time for discussion. Yesterday afternoon Mr. Wadsworth offered

an opportunity to discuss a paper, but it would take a man with great hardihood to attempt to discuss things in the face of this program.

MR. SISSON: The criticism is well taken and your president confesses that there was altogether too much solid meat packed into this program for a two days session, but having the program prepared and the gentlemen here, simple courtesy demanded they be given their time.

I want to compliment Professor Burritt and these young men for this very intelligent and illuminating presentation of the farm bureau work. From the way it has been received we might have devoted the entire afternoon to it and its discussion, but we have before us this very important and wide reaching topic of Agricultural Education. We are to have a formal report from our committee, a presentation of the work from the Department of Education, and another important paper, so we must now proceed and I will call upon Dr. Bailey to present the report of the Committee on Agricultural Education.

REPORT OF COMMITTEE ON AGRICULTURAL EDUCATION

DR. L. H. BAILEY

Your Committee on Education has undertaken to present a statement of the obligations of the state for the maintenance of education by means of agricultural studies and otherwise, and to give a list of the agencies; and also to point out some of the tendencies so far as public policies are involved. The committee has no recommendations to make, desiring only to place the facts before the society. The committee has not considered it to be within its purview to consider the details of administration or the appropriations of any of the institutions or agencies, or to discuss courses of study, entrance requirements, or other more or less technical questions that necessarily connect themselves with all educational work. The committee has felt that it should concern itself only with a very brief rounding up of the situation.

Your committee has applied for information to all the institutions and agencies in the state that are engaged in agricultural education on state funds. It has asked each of the institutions

for any statement it may desire to make touching the purpose and plans of the work and the cost to the state in round figures, and such statements have been kindly furnished by many of them.

Your committee feels, as a result of its survey, that the state has reason for pride in its institutions for agricultural education, and for confidence in the results that these institutions and agencies are accomplishing.

INSTITUTIONS AND AGENCIES

The committee has considered its field broadly, in agreement with the discussions of the times. It has interpreted the word "education" to mean not only formal instruction given by courses of study in institutions, but also the extension work of various kinds, the instructional work of the State Department of Agriculture, the general results of the application of the investigations of the experiment stations, the farm bureau efforts, and others. By "agriculture" it has understood the general field of human endeavor that has to do with the production of crops and products from the land, the handling and marketing of them, and the general advancement of country life; it has conceived its field to be that which is now generally recognized by the United States Department of Agriculture, State Departments of Agriculture, Colleges of Agriculture, Experiment Stations, and by general public opinion. Agriculture is no longer defined as only the special operations of practical farming, but it covers the whole situation of that development of society that rests broadly on the farming business. The public foundations for agriculture are now covering the field of food and drug adulteration, of weather forecasts, of scientific studies in a wide variety of subjects pertaining to rural problems and affairs, home economics, and the social and economic problems of the open country, as well as the immediate technical problems of the occupation.

New York State early began to foster agricultural work. In 1791 the Society for Promotion of Agriculture, Arts and Manufactures was established, and two years later it was chartered by the legislature. This body was succeeded in 1804 by the Society for the Promotion of Useful Arts. In 1819 a Board of

Agriculture was established to coöperate with the different counties for the improvement of agriculture. Thereupon arose the system of county exhibitions and fairs supported by public funds, and later the establishment of the State Agricultural Society, the seventy-fourth meeting of which we are now celebrating. For many years this society exerted a profound influence on agricultural education and betterment. For a time it was obscured by the growth of other institutions and agencies, but it is now active and it is hoped that it will continue to make its influence felt in the educational and other work of the state.

The first modern advance in the way of an establishment of an institution for agriculture was the foundation of the Agricultural Experiment Station at Geneva in 1882. The second organized departure was the formal establishment of the State Department of Agriculture in 1893. These acts have been followed by the establishment of five colleges and six schools within this general field, and also by the organization of agricultural work in the Education Department and by similar work in industrial schools and other institutions. The State Conservation Commission is also concerned in many problems that have direct relation to farming communities.

The five colleges that have been established by the state in recent times are as follows: New York State Veterinary College, founded in 1894 and opened in 1896; State College of Forestry at Cornell University, founded in 1898; State College of Agriculture, 1904; State College of Forestry at Syracuse University, 1911; The New York State Veterinary College at New York University, 1913. Four of these are now alive.

The schools of agriculture in the order of their establishment are: at St. Lawrence University, Canton; at Alfred University, Alfred; at Morrisville, Madison county; at Cobleskill, Schoharie county. For Long Island; at Delhi in Delaware county. The schools at Canton, Alfred, and Morrisville are well established in their work and are accomplishing good results. The other three schools are not yet in operation. The main building for the school at Cobleskill is not yet completed, but the trustees hope that they will be able to open the school in the present year. For the

school on Long Island, land has been secured and it is expected that the work of construction will soon be begun. The school at Delhi has not yet begun the construction of its plant.

FINANCIAL STATEMENT

It is impossible to say exactly how much state money is used each year for agricultural education, because it is so difficult to determine in many cases just which work should be called educational, which investigational, and which governmental or regulatory. The committee presents a general statement in round numbers of the appropriations for agriculture as given in the session laws for the past ten years, not including the work in agriculture by the Education Department, in the industrial schools, or such operations by the Conservation Commission or other agencies as have more or less bearing on the agricultural situation. The State Department of Agriculture expends approximately \$30,000 per annum in what may be called educational work. It is to be remembered that we are now in the period of construction of the institutions and that only a part of the total outlay represents maintenance.

The committee possesses detailed statements touching the expenditures of some of the institutions, and also the plans and programs that some of them have furnished; but it has seemed to be undesirable to extend the report by including them, unless the membership of the society desires to have them.

THE GENERAL SITUATION

1. The most obvious deduction from even a casual survey of the situation touching public agricultural education in New York is that the state has no plan and that it has followed no consistent procedure.

2. The next most important inference is, that inasmuch as there is no clear definition of the work so there must be more or less overlapping and duplication.

3. There is no effective unifying supervision of the agricultural education work of the state. The only body that has any legal oversight of it is the Agricultural Advisory Board, but the office of this board, as indicated in its title, is only to give advice;

Date.	State Department of Agriculture.	State fairs.	Experiment Station, Geneva.	State College of Agriculture.	Veterinary College.	College of Agriculture building.	Veterinary building.	St. Lawrence school.	Alfred school.	Morrisville school.	Cobleskill School.	State College of Forestry, Syracuse.	Long Island school.	Delhi school.	Total for year.
1904.	\$285,940	\$51,150	\$76,500	\$40,000	\$25,000	\$250,000	.....	.....	.....	.....	.....	.....	.....	.....	\$708,590
1905.	284,560	98,100	76,500	40,000	25,600	.....	.....	.....	.....	.....	.....	.....	.....	.....	524,760
1906.	291,360	115,150	86,500	100,000	25,000	.....	.....	\$80,000	.....	.....	.....	.....	.....	.....	698,010
1907.	238,580	183,482	110,650	150,000	30,000	75,000	.....	10,000	.....	.....	.....	.....	.....	.....	797,712
1908.	366,198	532,650	99,500	150,000	30,000	47,000	.....	47,500	\$5,000	\$20,000	.....	.....	.....	.....	1,297,843
1909.	470,826	406,242	99,000	175,000	45,000	33,000	\$20,000	52,000	66,800	.....	.....	.....	.....	.....	1,367,868
1910.	650,738	395,100	112,685	200,000	45,000	357,000	.....	62,000	37,000	76,775	.....	.....	.....	.....	1,936,298
1911.	664,178	387,950	124,800	225,000	50,500	138,000	105,000	52,666	44,463	55,600	\$50,000	\$55,000	.....	.....	1,953,157
1912.	953,323	347,722	129,300	265,000	50,000	55,000	523,000	55,000	43,550	71,380	.....	50,000	\$50,000	.....	2,598,275
1913.	554,160	462,900	136,500	450,000	70,000	559,000	.....	42,572	46,000	39,730	20,300	300,000	190,000	\$50,000	2,924,662
Ten year total.	\$4,739,863	\$2,980,446	\$1,051,935	\$1,795,000	\$396,100	\$1,514,000	\$648,000	\$401,738	\$247,813	\$263,485	\$70,306	\$405,000	\$240,000	\$50,000	\$14,801,185

and it is probable that in its present constitution it can not accomplish very important results in systematizing our educational activities.

4. It is very important that the subject of the establishing of separate schools of agriculture be given thoughtful consideration. The situation may be illustrated by calling attention to the three schools in the central part of the state, all of which represent one general geographical region and the business of general farming and dairying. The school at Cobleskill is about sixty miles in a straight line from Morrisville. The school at Delhi will be about thirty-five miles in a straight line from Cobleskill and about sixty miles from Morrisville. If this geographical ratio of the distribution of schools is to be maintained for the whole state (and it is difficult to see how other parts of the state can be refused in view of these establishments), we shall probably require thirty to fifty such institutions. These schools are in relatively thinly populated regions, and if such schools are to be distributed on the basis of population, a much greater number will be required. The probability is that the annual maintenance of these schools, when they are completely under way, will not be far short of \$50,000 each. If there are forty of them, it will mean an annual maintenance (aside from the expense of construction) of about \$2,000,000. Some of them will cost much more than \$50,000 annually. The society is to consider (1) whether the state can afford the expenditure; (2) whether the agricultural industry requires it; or (3) whether, if both these questions be answered in the affirmative, the amount of money could be made to go farther and to reach more people if added to the public school system for purposes of education in agriculture, or if used in other ways. If the state is to establish forty of these institutions, or even fewer, it will find itself in possession of a second or duplicate system of schools. It will be impossible to satisfy all localities until they all have been supplied with an institution.

The committee should explain that these schools naturally differ very much from one another, inasmuch as they not only represent different regions but also because they are now controlled by different boards and the separate institutions by local boards. This will result in very great divergencies in size of institutions,

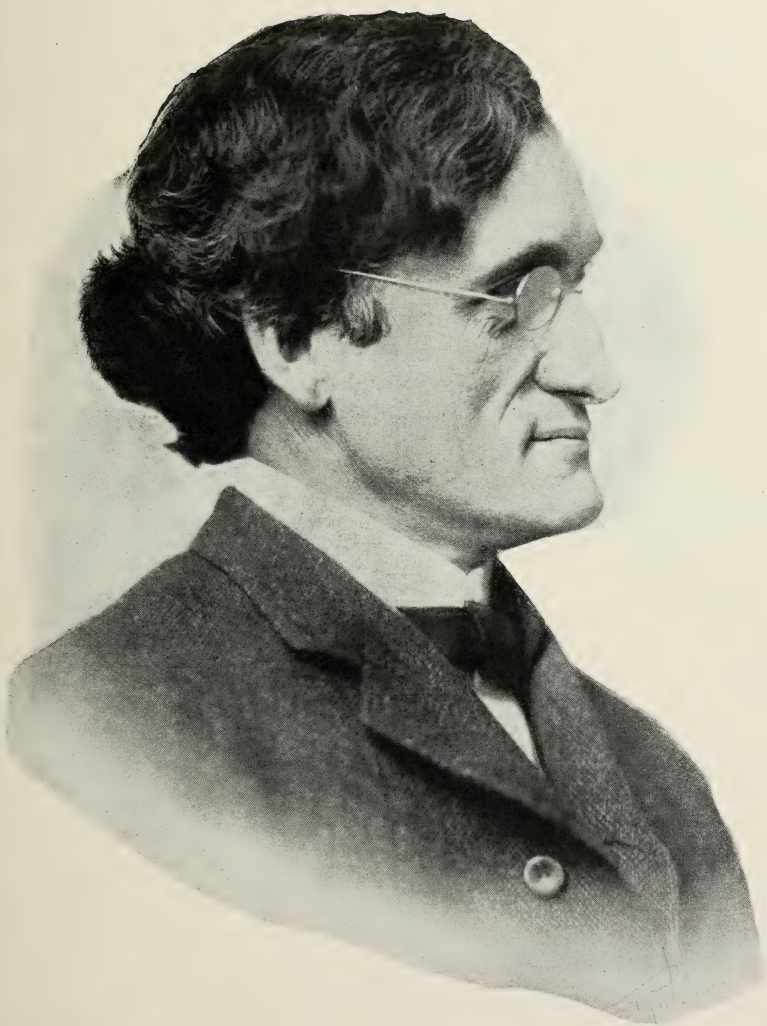


FIG. 250.—DR. L. H. BAILEY, ITHACA.

purposes, and kinds of work. The committee does not express any opinion as to the desirability or undesirability of such lack of standardization, but calls the attention of the society to the fact that will necessarily exist. As illustrating two quite unlike types of separate schools, the committee submits statements that it has received from the school at Morrisville and the school for Long Island:

MORRISVILLE

The management of the School of Agriculture at Morrisville is vested in a board of seven, of which two, the Commissioner of Agriculture and the Dean of the State College of Agriculture at Cornell, are *ex officio*. The others are appointed by the Governor with and by the consent of the senate for a period of four years. Of these five, at least two are to be appointed from Madison county. The present personnel of the board is as follows:

Ex-Officio

Honorable C. J. Huson, Albany, N. Y.
Professor W. A. Stocking, Jr., Ithaca, N. Y.

Appointed by the Governor

Honorable John T. Roberts, Syracuse, N. Y.
John A. Stewart, New York City.
Reverend John A. Grimes, Syracuse, N. Y.
George Beal, Hamilton, N. Y.
Herbert C. Wood, Morrisville, N. Y.

This institution had \$34,880.00 for maintenance last year. This year's appropriation is \$36,030.00.

The present plans include two-year courses in agriculture and home economics, short winter-courses in agriculture and home economics, a one-year trades course in dressmaking and millinery, and special courses in either agriculture or home economics.

The school takes what part it can consistently in local extension work, and effort is made to have the school a center for more or less interest in central New York. A successful breeders' club has been organized through the efforts of the school and attention is being turned toward other organizations through which farmers may help themselves. Farmers' week, held the third week in January, is the event to bring these interests together for annual meetings, exhibits and for instruction.

The school has a two-hundred acre farm which is being conducted for demonstrational purposes, for students and for the farmers. It is aimed to demonstrate methods of advantage to farmers of central New York, after first proving them out on the school farm. Some good results have already been secured along this line.

LONG ISLAND

The board of trustees of the New York State School of Agriculture on Long Island, organized under chapter 319 of the Laws of 1912, has adopted a plan for a secondary school of agriculture upon which it has been at work since May, 1912. The trustees have purchased 290 acres of land comprising three adjacent farms near Farmingdale, on the main or central line of the Long Island Railway, and alongside a cross-island trolley line which connects with the North Shore Line at Huntington, and with the South Shore Line at Babylon. The school is therefore easily accessible from all parts of Long Island, and is thirty-two miles from New York City Hall. The trustees proposed to limit the number of regular students to 1,000, of which number approximately 850 will reside at the school, and 150 may reside at home.

The school will be open to both young men and young women of high school age, whose preliminary education will be at least equal to that furnished in the elementary schools, including the eighth grammar grade. The board expects also to provide winter courses of instruction for farmers at the school and extension courses of instruction at various points in the southeastern part of the state. In case there is a demand, there will be normal courses of instruction given in the summer for the benefit of teachers in public and private schools, and others who are preparing to teach agriculture.

The regular courses of study will be not less than three years and may be as many as four years. In addition to the usual English branches, including history, the instruction will cover the subjects of agronomy, horticulture, dairying, poultry raising and domestic science, together with such fundamental instruction in physics, chemistry, mechanics, electricity, botany and zoology as will make the instruction in the farm subjects thorough and practical. The young men connected with the school will be housed in dormitories of approximately 50 students each, and the young women in cottages, eight students to a cottage. The young men will be taught in the field, laboratory and shop all of the practical operations connected with farming. The young women will be taught in the domestic science buildings, in the cottages and in the gardens adjacent to the cottages all of the different kinds of work that a good housewife should know. The farm lands will be carried on by the students and not by hired labor.

The state has appropriated for the school, in chapter 319 of the Laws of 1912, \$10,000, for the purchase of land, and \$40,000, for the erection of a building or buildings. It has also appropriated, by chapter 790 of the Laws of 1913, \$90,000 for the purchase of land, and \$300,000 for buildings, equipment and general expenses.

The board has asked the state for an appropriation for maintenance for the nine months, January 1, 1914, to September 30, 1914, of \$14,496.60, and for maintenance for the fiscal year October 1, 1914, to September 30, 1915, \$41,073.32.

On behalf of the board of trustees the State Architect has prepared a block plan for the school buildings, and is at work upon the detailed plans and specifications for said buildings. It is expected that the work of construction of the first buildings will be begun early in 1914. Mr. A. A. Johnson, of the Milwaukee County Agricultural School, Wisconsin, has been appointed the director or principal of the school, his services to commence on full time on January 1, 1914. No other appointment has yet been made by the board of trustees except a caretaker for the three farms that have been purchased and for the buildings and property contained thereon.

5. The attention of your committee is called to the fact that there is no effective way whereby the boy who is not reared on a farm can secure real practice in farm operations. The number of such youth from villages and cities applying for admission to the schools and colleges is increasing rapidly. These youths may meet all the entrance requirements and yet be unprepared to pursue a course of agricultural instruction. Many of them have found places on farms for a season or a year, but the number of opportunities of this kind is very inadequate, and there is now a marked tendency for farmers to refuse to take any young man until he has had at least some farm experience and is known to be capable of doing more good than harm. A regular educational institution can not provide complete training in farm practice

and operations, but a good elementary training-school can accomplish very much in drilling a youth in the general and simpler practices and in putting him right toward his work. If the state is to establish additional schools of agriculture, it is to be considered whether it would not be desirable to make real training-schools for novices of the trade-school or apprentice-school type rather than secondary and curriculum schools.

6. A question of great public concern is raised by the establishment of the New York State College of Forestry at Syracuse University. If the state can establish by any means an enterprise for or connected with one institution chartered on a denominational basis, it can be called on with equal right to do the same for all such institutions of whatever grade or place. Probably there are many such institutions and organizations that would be glad to undertake state work, and the number that may be expected to qualify is likely now to increase. This is not a question of agricultural education alone, but of any education, whether rural, industrial, professional, or otherwise; and not only of educational policy, but immediately of finances. The committee makes no discussion of particular institutions, but it feels it to be its duty to call attention to a situation.

The direction to which the state is now committing itself is a departure. It is in effect a subversion of the policy that has become a recognized attitude in American governmental action, an attitude that has safeguarded equally our public affairs and the freedom of all denominations, and that has avoided many of the dangers into which other governments have fallen. The state having begun this practice, it is difficult to see where or how it may stop.

7. Of late years much extension work in agriculture has developed within the state. The regular organization of such work on a state plan is much to be desired. The committee calls attention to the fact that Congress will probably soon pass an act providing for extension work in the different states, supplementing the land-agent act of 1862 and the subsequent acts. It will not be the establishment of a new foundation but a further application of the land-grant principle, which is the only federal or national system of educational institutions in the United States. The com-

mittee feels that the members of the society should be aware of such pending legislation and that it will have the effect in every state of crystallizing and standardizing extension work.

The farm bureaus are now a factor in the extension work. In twenty-two counties these bureaus have been established, and they promise well. The success of any bureau depends to a large degree on the ability and specially on the personality of the agent, but much also depends on the expectations of the people. These bureaus are not primarily for the giving of advice to farmers as to how they shall run their farms, and it is probable that the term "farm adviser" has given an erroneous impression, particularly as the agents are almost necessarily at present young. The farm-bureau agent is to organize his communities in some constructive lines of progress, to collect data, to afford a means of exchange of ideas, to set things going, to energize the activities, to act as counsellor, to analyze the farming of the region, and to give advice on programs and so far as possible on farming practices. The numbers of such agents will undoubtedly increase rapidly as soon as their purpose and value are understood, and they will become one of the most important means of extension education. It is imperative that they be wholly free from politics and patronage. New extension enterprises in the localities should consider these agencies. For example, if effort is to be made to stimulate the organization of local coöperative societies and credit facilities, care should be taken not to duplicate or overlook or forget the work of the farm-bureau agents or to start any enterprise that may fail to make productive use of them.

8. The State Education Department is lending its aid to the teaching of agriculture in the schools and it maintains a regular office for the exclusive supervision of the work. The committee feels that this work will be extended in such a way as increasingly to meet the needs of localities and to place the teaching of agriculture within the reach of those who desire it. The coöperation between state and locality is a very important factor in this work. The present status of the "schools of agriculture, mechanic arts and homemaking," as provided by law, is as follows:

There are now in the state thirty-seven high schools employing a man who gives his time exclusively to the teaching of agriculture. This is a gain of eleven over the number of last year. Fourteen of these schools also give

instruction in homemaking for girls, against seven of last year. Twenty more of the smaller high schools are giving some instruction in agriculture or homemaking, although not using the whole time of a teacher for such instruction.

The recent amendment to the Education Law relative to the establishment and maintenance of these schools embodies the following changes:

(a) The length of the term is reduced from thirty-eight to thirty-six weeks.

(b) The required number of pupils is reduced from twenty-five to fifteen.

(c) The apportionment is increased from \$500 for the first teacher and \$200 for each additional teacher to two-thirds of the salary of the first teacher and one-third of the salary of each additional teacher.

(d) An additional appropriation of \$200 is provided where the teacher is hired for the entire year.

(e) Any person employed as teacher of vocational subjects may serve as principal of the school in which he teaches those subjects.

(f) All moneys apportioned under this act are now to be used exclusively for the payment of the salaries of vocational teachers.

The change in the method of apportionment and the increase in the amount enables schools to secure better teachers and to retain their services. The provision for summer employment of the teacher allows for the effective operation of the principle on which schools of this type are based—a close connection between the school work in agriculture and the home work.

While the main efforts of the teachers of agriculture are directed to the boys who are in school, they are active in all the agricultural enterprises of the community. The Extension Department of the College of Agriculture, the State Department of Agriculture, county agents, and other organizations have worked in cooperation with these men. The teachers have been active in organizing and supporting local agricultural societies and clubs. For example, through the efforts of one of these teachers a local breeders' club was formed and a \$1,600 percheron sire purchased. Another teacher has assisted in the organization of a local cow testing association.

So far as possible, these men are encouraged to act as local representatives of the agricultural interests of the neighborhood not only for the good of the farmers but more especially to keep the school and the teacher in touch with the realities.

9. In conclusion, your committee desires to call attention to the fact that the interest in agricultural education is extending, that all the institutions and agencies are becoming better organized and more effective, and that they naturally will require increasingly liberal support.

MR. SISSON: I am sure we have all been gratified and greatly instructed by this broad and comprehensive presentation of the subject of agricultural education by Dean Bailey. No man seems to my mind to have a broader vision of the subject than he. He touched upon the good work that is being done by the Department of Education. We are fortunate in having with us Dr. Thomas E. Finegan, Assistant Commissioner of Education, who will speak to us on "How Our Rural Schools May Be Improved."

HOW OUR RURAL SCHOOLS MAY BE IMPROVED

DR. THOMAS E. FINEGAN

New York is called the Empire State because she ranks first among all the states of the Union in population, wealth, manufacture and commerce. The annual value of the manufactured products of the state is approximately \$3,400,000,000. About one-sixth of all the manufacturing establishments in the United States and about one-sixth of all the wage earners employed in these plants are within the state of New York. Of the twenty of the chief manufacturing industries of the country she ranks first in eight and second in five of the others. These principal industries are of such a diversity in character and such a type that they require large numbers of skilled mechanics and intelligent, high-grade laborers for their operation. These great industries are not centralized in two or three sections of the state. They are distributed throughout the fifty-six cities and a hundred large villages in all parts of the state. It is probably true that about one-half of the value of the manufactured products of the state belongs to Greater New York, but it is also true that those that are distributed throughout the other sections of the state exceed in value the manufactured products of any other state in the Union. Nearly one-half of the exports and about two-thirds of the imports of the entire United States pass through the ports of New York. Of the great army of foreigners coming to this country about 75 per cent. arrive at New York. About 50 per cent. of these remain in the state and the great majority almost wholly in the populous centers. The stupendous values of these manufactured products, the variety of industrial activities in the state, the great manufacturing plants which have risen in all the cities and villages, the greater social and cultural opportunities which are afforded in the cities and the villages, and the life, push and energy so manifest in all the populous centers have been the means of causing the people of the state, including even the residents of the farming sections, very often to overlook in a measure the value and importance of our agricultural interests and the vital influence which the conditions of our country life exert upon the state's commercial supremacy and her intellectual power and influence.

For many years there has been a gradual decrease in the population in the agricultural sections of the state because of the general drift of people from the country to the city. In 1880 the population of the cities of the state was less than the population of the remaining portions of the state. Since that date there has not only been a constant decrease in the population of the rural portions of the state, but the number of cities has more than doubled and the population of the cities has increased rapidly until the cities now contain 75 per cent. of the population of the entire state. The population of the state is now approximately 10,000,000. About 8,000,000 of these live in the cities and villages and less than 2,000,000 in the strictly agricultural sections. In 1880 the number of children in attendance upon the schools of the state was 1,010,887. Of these 582,436 were in the schools outside the cities and 428,451 in the schools in the cities. The number of children therefore in 1880 in attendance upon the schools outside the cities was 154,000 more than the number of children in attendance upon the schools in the cities of the state. During the past school year there were in attendance upon the schools of the cities of the state 1,041,524 children and there were in attendance upon the schools outside of the cities 496,361 children. The number of children therefore in attendance upon the schools in the cities exceeds the number in attendance upon the schools outside the cities by more than one-half million. Within this period of 33 years the number of children attending the schools maintained outside the cities has decreased 86,075, while the number of children attending the schools maintained in the cities has increased more than 613,000.

The assessed valuation of all taxable property in the state in 1880 was \$2,637,869,238 and in 1910 was \$11,022,985,914. The value of all farm property in the state in 1880 was \$1,216,637,765, and, according to the census of 1910, it was \$1,451,481,495, an increase in 30 years of \$235,843,730. It will be thus observed that the wealth of the country, as well as the population, has also been centralized in the cities.

New York was once the leading agricultural state in the Union. Her geographical position and her great natural resources gave her unexcelled opportunities for the development of commercial

and industrial activities. It was undoubtedly predestined that the development of the great farming states of the central west should legitimately take from her the supremacy in rank as an agricultural state which she held for so many years and that her pride should be humiliated by the census of 1910 by being ranked number eight in importance as an agricultural state. Nevertheless the agricultural interests are of prime importance and are among the valuable financial and commercial assets of the state. New York ranks first in the value of her dairy products, in the production of hay, small fruits, apples, potatoes, nursery products, flowers and plants and other products, and in the value of dairy cows. She ranks second in the production of buckwheat, orchard fruits, pears and grapes, farm forest products, bees and wax products, hops and other products. More than 18,000,000 bushels of corn are grown in the state annually, 35,000,000 bushels of oats, 6,664,000 bushels of wheat and more than 5,000,000 bushels of buckwheat. It should be noted, however, that the yield of potatoes per acre is 106 bushels, or below the average in the United States, which is 113.4 per acre, and that the yield of hay is 1.25 tons per acre, while the average for the country is 1.47 tons per acre. Our state is not destined to remain long at the head of the list in the value of her dairy cows. In 1910 the value of these cows in this state was \$69,110,608, and the value of such cows in Wisconsin was \$50,910,735. The value of the New York dairy cows therefore exceeded the value of the Wisconsin dairy cows by more than \$18,700,000. Since that time, in the space of three years, the value of these cows in New York State has grown over \$4,100,000, but the value of such cows in Wisconsin has grown nearly \$21,000,000. These values now stand: for New York, \$73,250,000; for Wisconsin, \$71,741,000. At the same ratio of increase Wisconsin will outstrip New York before the end of the year 1914.

The value of the eggs produced in this state for the year 1909 was over \$17,000,000, but the value of this product in each of the states of Ohio, Wisconsin and Iowa was \$19,000,000. This condition is not only humiliating to New Yorkers but it is such as to justify them in actually becoming enraged. There is no climatic or geographic condition, no scientific or economic reason

why the hens of these three central-west states having a smaller population than New York should be so superior to the hens of the Empire State, and particularly so when eggs are selling for 50 and 60 cents a dozen.

It may pertinently be inquired what bearing this discussion of the commercial and the agricultural standing of the state has upon the improvement of the rural schools. No argument will be made holding the school responsible for this situation or claiming that the schools alone may remedy existing defects in organized society. These observations have been made for the purpose of presenting the social, industrial, commercial and economic conditions prevailing in the state at the present time. They picture to our imagination, upon one hand, the great active centers of population throughout the state, with their millions of people in congested districts, including great industrial plants turning out billions of dollars worth of products to be distributed throughout the civilized world; upon the other hand is presented a view of twenty-two million acres of farm land in the state, the vast forest regions, the rivers and lakes, the fertile soil, the great crops, the cattle and animals, and the 2,000,000 people living in the peacefulness and delight of farm life. These cities are to remain and the number of inhabitants will increase. These 8,000,000 people and their increased number must be fed. Their dependence for existence upon the 2,000,000 living upon the farms is obvious. As the number of people increase in the cities added burdens are placed upon those living upon the farms and the interest and responsibility of the cities in this situation is vital. This situation presents to the farmers of the state an idea of the obligation and the opportunity which confronts them. The farms of New York must be made more productive. The cows of New York should be the equal in value and in production of the cows of Wisconsin and the hens of New York should become even superior to the hens of Ohio and Iowa. To accomplish this result, there must be more intelligent, scientific management in the agricultural pursuits. The state colleges of agriculture, the experiment stations and the secondary schools of agriculture are developing knowledge through new experiments and research work which should be applied to every farm in the state. There must be some medium

by which this knowledge may be disseminated among all the farmers of the state and by which they shall be trained to make direct application of this information in their every day farm life. There must also be an agency which shall train from year to year more intelligent men and women who shall possess broader views upon the outlook of life, clearer conceptions of the aim and purpose of the work which they undertake and greater skill and adaptation in the performance of their labors. The public school is the great effective organized force able to discharge this function in behalf of the state.

The law-making power of the state has done very much within recent years to improve the school facilities of the rural districts. The state has made the rural schools her special wards. She has provided an enlarged apportionment of public funds for their special benefit, giving to the weaker of these districts the greater amount of state assistance. Among the many laws enacted for the betterment of conditions in rural life, by improving the educational facilities for this section of the state, may be mentioned the rural school supervision law; the law providing for the retirement of teachers who have become incapacitated because of old age and the service which they have rendered, and without any contribution so far on the part of the taxpayers; and the laws extending the school term from thirty-two to thirty-six weeks, making the compulsory education law effective for the whole period schools are in session, requiring schools to open the first week in September, making provision for the enlarged use of school buildings and school grounds and organizing the schools as a social center, making special provision for the organization of agricultural courses in the academic schools on a par with the other courses maintained, and further providing for agricultural instruction in all the common schools of the state, making it possible for boys and girls living in the remote farm sections, where high schools are not maintained, to attend neighboring high schools by the state paying tuition therefor, extending the school library service with the idea of bringing the books and literature essential to the advancement of the people in the farming sections within their reach; authorizing the consolidation of weak school districts and the apportioning to the districts thus consolidated of the same amount of state funds in

the aggregate which is now apportioned to the weak districts separately; and providing for the medical examination of all children attending schools, thus conserving the health of the agricultural communities and safeguarding one of their greatest assets.

It must be observed from the character of this legislation that public education has an enlarged meaning in this day. Public schools are now recognized as institutions dedicated to the service of the whole people. This service is no longer to be restricted solely to the children enrolled as pupils. An extended service is not only to be afforded the children attending the schools, but the service of these institutions is to be extended to all the people. The school system is to be made an instrument which shall meet all the intellectual needs of the people of a great commonwealth. The general thought to be conveyed will be better understood if we do not consider the school as a mere classroom but if we think of it as a great democratic institution, and if we shall regard the service which this institution is to render as one which is to administer to all the educational necessities demanded not only by the children but by the people themselves under the conditions presented by our present advancing civilization.

The primary purpose for which school buildings have been constructed is to provide proper facilities for the public education of the children of the state. These buildings should, of course, be put to no use whatever which will interfere in any way with the direct purpose for which they are intended. These buildings are used for school purposes not to exceed eight hours a day for five days per week for thirty-six weeks a year. In other words, they are used eight hours a day for about one hundred eighty days in the year, or less than one-third of the usual hours when people either work or seek recreation and amusement. During the remaining two-thirds of such time these buildings are used but little, are not generally accessible to the public and are serving no useful purpose in any way whatever.

The rural school districts of the state have invested about \$35,000,000 in their public school buildings. It has been pointed out that those buildings are in use only one-third of the time. Can it possibly be considered good business policy to get no return from this great investment for two-thirds of each year? In what

other enterprise would the state or a great corporation tie up such a vast sum of money and permit it to remain idle for eight months in each year?

One of the most comprehensive and effective statutes conferring upon the people the right to use school property for the intellectual advancement of all the people which has been enacted by any state in this country was enacted by the Legislature of our own state last year. This law is strictly a home-rule measure. It confers upon local school authorities, when authorized by a vote of the district meeting, the power to designate sites or grounds to be used for playgrounds, or for agricultural, athletic, and social center purposes; to purchase implements, apparatus and supplies necessary to provide instruction in agriculture and other subjects, and for the organization and conduct of athletic, playground and other social center work; to employ persons to supervise, organize, conduct and maintain athletic, playground and social center activities, and to arrange with regular teachers of the school to supervise and direct any of these lines of educational activities.

This law further provides that the schoolgrounds and school property, when not in use for school purposes, may be used for any of the following:

1. For the purpose of giving and receiving instruction in any branch of education, learning or the arts.
2. For public library purposes or as stations of public libraries.
3. For holding social, civic and recreational meetings and entertainments, and other purposes pertaining to the welfare of the community.
4. For meetings, entertainments and occasions where admission fees are charged when the proceeds thereof are to be expended for an educational or charitable purpose in which the community has a common interest.
5. For polling places for holding primaries and elections, the registration of voters and for holding political meetings.

At the same time every safeguard necessary to protect the schools from interference with their regular work has been incorporated in the law. The enactment of this law, however, will not in itself accelerate the progress of this movement to induce the people to make greater use of the facilities at hand to improve their social

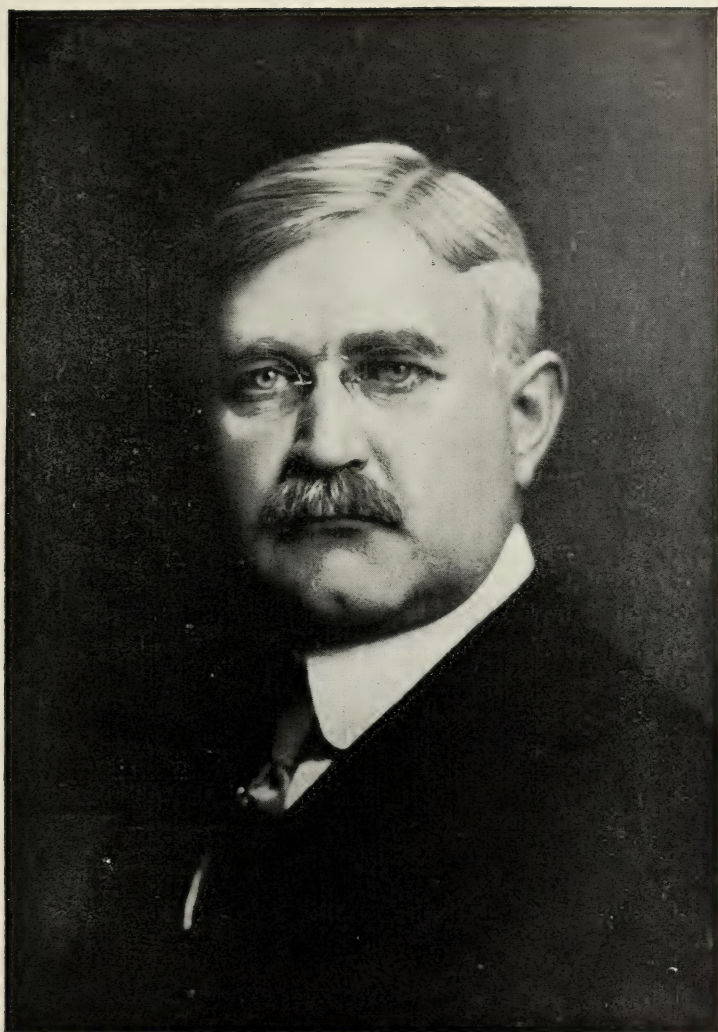


FIG. 251.—DR. THOMAS E. FINEGAN, ASSISTANT COMMISSIONER OF
EDUCATION.

and intellectual status. If the purposes sought through the enactment of this statute are to be accomplished, the people who are to be benefited thereby must be induced to appreciate this great opportunity for the betterment of their social and intellectual standards.

The rural schools should also do what is now being done in many of the cities. There is no reason why schools should be maintained only forty weeks in the city or only thirty-six weeks in the country. There is no reason why the schools should not be very generally organized so that they shall be in continuous session for the benefit of those children who are physically able to attend and who would be better off in the schools than on the streets or in worse places. Where schools have been maintained in the cities during the summer, pupils have made material advancement. Through these vacation schools large numbers of children would be able to save two years of school life and would complete the elementary course of instruction at twelve years while they would not complete it under present management until they are fourteen years of age. The time will come when, even in the rural districts, schools will be maintained the entire year.

The present system of supervision of the rural schools by professional superintendents has already produced effective results. These superintendents have been the means of arousing great interest not only in the rural schools but in the whole rural life problem. They are intelligent men and women, devoted to their service and giving careful study to our existing rural problems. The local press throughout the state has very generally given these supervisory officers most active support and has brought to the direct attention of the farmers of the state the work which they are doing and has urged the public to coöperate with them. The leading citizens of the rural sections of the state have assisted these superintendents in a way which has been most helpful to the schools. The organized agricultural forces of the state have shown a deep interest in the schools and have been active in upholding the efforts which district superintendents have inaugurated for the improvement of the schools. That all these forces are working in harmony is evidence that the work which has been undertaken is generally approved by the public. It is fortunate that this is the case. The building-up of the country schools to enable them

to give the kind of instruction which will be the most serviceable to the agricultural interests of the state is a difficult proposition. The accomplishment of this great purpose requires the united and harmonious action of all the agencies interested in the rural life problem. The disposition throughout the entire rural sections has been to improve school property, to construct new buildings, to repair old schools, to improve the grounds, to add new equipment and apparatus, to interest the public, to organize corn clubs, potato clubs and other competitive work bearing directly upon the home and the life of the farm.

There are three vital points which stand in the way of better country schools. These are:

1. The low standard of qualification exacted from the teachers employed in many districts.
2. The number of weak districts with few pupils and low valuations for their maintenance.
3. The inequality of taxation prevailing throughout all rural districts.

The country school can not be made the equal of the village or city school and the teaching therein can not become so vital and effective until the teachers employed in such schools are at least the equal of those employed in villages and cities in scholarship, in professional training and in general adaptability to the work of teaching. While there are many good teachers in the country districts, it is nevertheless true that the poorest prepared teachers in the state's system are generally found in the country districts. There are 16,550 teachers employed outside the cities and villages of 5000 or more population. Only 4100 of these hold the higher forms of certificates, including the life state certificate, the certificates issued to college graduates, and state normal school diplomas. The majority of these 4100 are teachers employed in the 600 villages of the state having a population of 2000 or less. About 6000 teachers who have completed our training class courses and 6000 who hold certificates issued by former school commissioners and by district superintendents are employed in these schools. These 12,000 teachers possessing the meager qualifications under present requirements are carrying the mighty responsibilities which rest upon the rural schools of this state.

The state should therefore prescribe the same general scholarship, graduation from an approved four-year high school course, for its rural school teachers which it now demands of the teachers employed in the elementary schools of cities and villages. Special professional courses based upon the needs and conditions of rural life, covering at least two years, should be established in the state normal schools and part of these institutions, the most favorably located and best adapted for such special work, should be devoted solely to the preparation of rural school teachers. This standard of qualifications of teachers can not be exacted until there is a very material increase in the salaries paid the teachers of the state. It is not to be expected that intellectual talent of a high order will long be attracted to the teaching service with the opportunities afforded in other vocations of life, unless a very substantial increase in salary is accorded those engaged in teaching. It can not be expected that this grade of teachers can be obtained at the average salary of \$465.75 per year which is now paid teachers of this state employed in the schools maintained outside of the cities.

The present organization of our rural school system is largely responsible for this condition. Much relief may not be expected until there is a radical change in the administration of country schools.

The present school district system had its origin in the law enacted in 1795. The changes in the condition of the country and the advancement in our civilization have been tremendous since that date. When schools were organized under this law, it was on the plan of associated effort. The inhabitants in settled portion of the state banded together for the purpose of maintaining a school. As the settlement and development of the country extended, new associations were organized and, under the law of 1812, school districts were formed, the entire territory of the state being organized into such districts. The simplicity of the course of study, the number of children to receive instruction and the relatively small expenditure for the maintenance of a school enabled the people of the state in these early days to maintain satisfactory schools on the plan of school district organization.

It is not desirable to continue the organization of the school system in the rural districts on the present plan. There are in the

state 1400 school districts, having an assessed valuation of \$20,000 or less, and there are 4000 such districts having an assessed valuation of \$40,000 or less. This means that each of these 4000 districts must depend for its financial support on ten farms with an average value of \$4000 each. In about one-half of these districts the average daily attendance was less than ten. It is not possible to maintain a successful school with so few children and with so little property for its support. The two most essential elements in the maintenance of a school are a sufficient number of children to grade it properly and a sufficient amount of taxable property to support it without the taxation being burdensome. These two elements of school organization are being recognized throughout the entire country and for several years there has been a movement favorable to the consolidation of weak country school districts so that a greater number of children, a larger amount of taxable property and more public funds may be brought to the support of a single school. By the establishment of consolidated districts, courses of study adapted to the needs of the agricultural sections may be given, trained teachers, who are familiar with the problems of rural life as they exist today and who can intelligently lead in the movement for the solution of such problems, may be employed, the investment of the people in the maintenance of the school will give better results, and the expense of the maintenance of the single enlarged school will not equal the expenditure for the maintenance of the several weaker and poorer schools. In other words, the consolidation of country districts means better schools for the same expenditure of funds.

The education law was amended by the Legislature of 1913 by providing that the voters of two or more rural school districts may come together in joint meeting and vote upon the consolidation of such districts. A majority vote of each district is necessary in order to bring such district into the consolidated district. There is nothing mandatory in the provisions of the law. The law simply authorizes the people to determine for themselves whether or not they desire to consolidate their weak, poor schools and have stronger, better schools without a greater expenditure of funds. A strong school, providing instruction adapted to the present agricultural needs of a community is a greater financial asset to a

farm than a weak school which is unable to provide the instruction which the children living on farms in this state are entitled to receive. The following illustration will show the effective results which may be obtained under the law enacted by the last Legislature:

There are three school districts, numbers 1, 2 and 3, which may be consolidated into a single district. District no. 1 has 15 children, an assessed valuation of \$30,000 and receives from the state \$175. It expends \$450 a year for the maintenance of its school. District no. 2 has 12 children, an assessed valuation of \$20,000, receives \$200 from the state and expends \$450 for the maintenance of its school. District no. 3 has 20 children, an assessed valuation of \$39,500, receives \$175 from the state and expends \$500 for its school. It costs these three districts to maintain such schools as they are able to provide, in the aggregate of \$1400. If these districts were consolidated into one district, the consolidated district would have 47 children, an assessed valuation of \$89,500, and would receive \$550 in public money from the state, an amount equal to the aggregate amount which was apportioned to the three separate districts. Two trained teachers could be employed in the consolidated district and the division of the work necessary to give instruction to 47 pupils would give each teacher an ideal number of pupils to instruct properly and give the individual attention which is essential. The expense of employing the two teachers in the one school would not exceed the expenditure now necessary to maintain three teachers in three separate schools.

The rural free delivery, the telephone, electric lights, good roads, the auto-bus, the trolley line and the automobile are the advance agents of the consolidated rural school for New York State. By the consolidation of school districts and by provision for transportation, where necessary, real schools may be maintained where an apology for a school is now conducted in thousands of our country school districts and millions are expended without the greatest return possible being received. Every school district in the agricultural sections of the state should be able to possess a site containing from two to five acres of ground for athletic and recreational purposes and for experimental work in agriculture.

Then the corn clubs organized in each rural school of the state may prepare the soil for planting, may select the seed to be planted, may cultivate the growing plant and harvest their crops in accordance with what the scientific agricultural institutions of the state and nation may say is the best procedure in such matter. The same method may be followed with the potato club and, when this is done, the annual yield of that product in this state will not be below the average yield in the United States but very much above it. May not the other principal crops receive the same attention and the practical results achieved in all this work and its value be brought by the school children to their homes and put into actual operation there. The girls may be interested in similar work pertaining to the home. Clubs may be formed for making bread, for canning fruit, vegetables, etc., and with similar results. Can you imagine 5,000 public schools of this state, dotting the hills and valleys of our entire agricultural section, giving instruction to the boys and girls from every farm of the state and performing this kind of service for a period of ten years and then imagine what the effect would be upon our agricultural interests and upon the life of the state.

There has been no movement in recent years, looking to the improvement of the educational facilities in the agricultural sections of the state, which is of more importance than the one intended to bring about the consolidation of the weak school districts throughout the state. This movement is one which should have the thoughtful consideration of every intelligent citizen of the state and every superintendent, school officer and farmer should coöperate to the end that the funds which are unwisely expended in the maintenance of poor schools may become a valuable investment by being expended for the maintenance of schools which will afford the instruction which is needed in the schools maintained in the farming sections of the state.

An inequality in taxation for school purposes means an inequality in educational opportunity. School districts have been formed without reference in any way to assessed valuations. One district may have an assessed valuation of \$148,000 and an adjoining district a valuation of only \$16,000. The latter district may have as many children to educate as the former

but the inequality of taxation is apparent. Then too, some of the children residing in the weaker district may live one mile nearer the school in the other district. Why should not such children attend the school which is most accessible to them? There are, of course, objections to the town being made the unit of taxation for school purposes. There are, however, very many arguments in favor of a change in the unit of school administration. The question is therefore whether or not it is wise to modify some of the traditions and customs of more than a century's practice and maintain schools so as to meet the convenience of the people without reference to the present arbitrary school district boundaries. If the schools were under town management instead of district management, better business principles would control and there would be less waste in the expenditures made. It will be readily observed how more effectively the laws could be executed and the administration of the schools be made under a town system than under the present school district system. Each town may employ an expert in agriculture whose time would be divided among the several schools maintained in the town. The enforcement of the compulsory attendance law, the medical inspection law, the operation of a system of libraries and many other features of school work could be made more effective. It should not be understood that, because this question is raised in this paper, it is the intention of the Education Department to propose such change at this time. The question, however, is coming to the public mind. It is receiving attention in this state and in other states and the time will come when action of some kind will be taken. If this society and the State Grange should take this question up and come to a conclusion on what is the best policy for the state to pursue, such action would have great weight in determining whether or not the proposition should now receive serious consideration.

However, for the present, by the proper adjustment of courses of study, by the teaching of health principles and sanitary measures, by the extension of the use of school property for the various purposes now specifically authorized by law, by developing our great library systems and extending their use to every inhabitant in the state, by encouraging the district superintendents in their

efforts to organize corn clubs, etc., by promoting the consolidation of weak school districts, by increasing the qualifications of teachers, we may administer our great system of rural education so that it shall bear directly upon the life of all the people of the state, improve their living conditions, increase their efficiency, their earning capacity and their happiness, raise their moral, industrial and intellectual standards, become more responsive and adaptable to the changing conditions of our progressive civilization and enlightened democracy and justify the expenditure of \$14,000,000 annually for the maintenance of schools throughout the rural regions.

MR. SISSON: It is a matter of congratulation to us that we have with us, sitting at my right, a former president of this society, Honorable James Wood of Mt. Kisco, who was elected to this position just twenty-five years ago. I only speak of this to say how glad we are to have him with us.

MR. WOOD: I do not want to take your time for I know your program is very full. I do want to say, however, that the arrangement of the program for this afternoon session is of the greatest possible importance. There could be nothing to which the society could give its attention of more importance than the subject of agricultural education. When I was president of this society its activities and duties were devoted to the holding of a State Fair. We had not then reached in the development of the society's work the high plane upon which you, Mr. President, and others, have been active in placing it in later years and the reports of such meetings I have read with the very greatest interest.

I want to say a word in regard to agricultural education which is your subject for this afternoon. We have a great variety of agencies for carrying on this work in the state—the public schools, the colleges, the experiment stations. I do not wish to anticipate the paper of the next speaker, but I want to ask you to give very particular and thoughtful attention to the paper I understand will be presented by Dean Cook, for I believe the time has come when there should be a unification in this work of agricultural education in the state of New York, and it should be developed as has our national system from the time it was established. In its growth for 150 years until the national act of 1895,

there has been a steady progressive development, and I believe that it should continue but that it should be unified so that it may achieve the greatest possible results.

MR. SISSON: Before introducing our next speaker I wish to let it be known that we will have the report of our Committee on Resolutions following that, some business matters to close up, and if you are willing to stay we are willing to discuss things that may come before us at that time.

We will now proceed to Dean Cook's address on "Agricultural Unification in New York."

AGRICULTURAL UNIFICATION IN NEW YORK

DEAN H. E. COOK

I am very glad indeed that Mr. Wood mentioned this paper, because I had the privilege of briefly going over with Mr. Wood some of the points I want to bring before you, and I assure you much to the value of the paper. I have also talked on the subject with several men who are in the room this afternoon. While I had an original thought, after I had canvassed the situation with some of our leading educators in the state, I find there is very little indeed left of my original thought. So I offer no apology for taking your time today. The paper is brief; it at least has that advantage if nothing more, and after listening to the report of Dr. Bailey, touching upon one phase chiefly of our agricultural educational system in the state, it seems to me what I have to say will be warranted.

Ten years ago the state of New York began to establish a system of popular agricultural education. The only building which the state had authorized for agricultural instruction was the fifty thousand dollar dairy building at Cornell. At that time the western institutions, notably Wisconsin, had formed an elaborate scheme for agricultural training.

I had the privilege in the city of Albany of making one of the first public addresses, advocating a change in the policy of the state from one of apathy to one of large construction. Many of us remember the struggle to create a public sentiment strong enough, and to stimulate a Legislature and Governor willing enough to pass the bill appropriating \$250,000 for buildings, and

the establishment of a state college at Cornell. The cause was righteous and not a single regret can be found in the state at the present time because of that action. We are all proud of our State Agricultural College and its work. We are also proud of our Experiment Station, Department of Agriculture schools, and all other agencies which are today working for the betterment of our rural life and indirectly for the benefit of consumers everywhere.

Those were pioneer days in agricultural education in the state, and while we do not face the same problem now, it seems to me we face one equally as important. Our first problem was to get tools and working equipment. Today we are interested in correlating and supervising the great agricultural machinery and business which the state has so generously provided. During this pioneer period just mentioned, we have no doubt been better served by the unselfish devotion of our agricultural leaders and their statesmanlike desire to serve the commonwealth than we would have been with a crude and improperly worked out centralized authority.

But we have now reached the limit of coöperation without statutory control. The units have become big. They number an efficient department of agriculture, one of the big colleges of the country, an experiment station at Geneva, with the finest equipment in the country, special schools of agriculture, recently established, each creating an atmosphere all its own, an educational department rapidly introducing agriculture into our public school system, and more recently the establishment of a college of forestry in connection with one of the leading universities of the state.

We have reached a time when the human problem involved in administration concerns us. As each institution develops, its own problems become larger and more difficult to execute. The men who are responsible in each case more and more see the magnitude and importance of their own particular institution or piece of work, and much to their credit; they would fail if it were not so. These men therefore with their human limitations find their own problems absorbing their time and strength without, maybe, always having full regard for their own relationship to the state. Such a state of affairs sooner or later breeds chaos. Jealousies very naturally arise, friction follows and unfortunate things are said

and done because there is no strong centralized controlling influence.

The division of labor is the key to success but it is also the key to anarchy unless supervised and directed.

If my judgment is correct we can not expect to have agricultural control lodged in any educational institution now established in the state. A similar problem was involved when our present State Education Department was established; that is, no single educational institution could be expected to unify sentiment, evolve policies and administer the affairs of a central authority. The wisdom of the plan has been justified. When the unification of the Board of Regents and the State Department of Public Instruction was established by law, nine years ago, the general principle of centralized control was simplified and strengthened. Not only was the principle simplified but it was once for all removed from political influence and control. It is probably a safe statement to make that no department in our state is administered with less friction and with greater satisfaction to the people than our Education Department. Not because the heads of departments are wiser or better or different from other people, but because they work in a system which is perpetuated beyond the short stand of party control. If I may be permitted to say it, the scandal and inefficiency which have developed in departmental work in our state have come out of those departments which have been political and have had a constant changing leadership.

Our present Department of Agriculture is efficiently officered but the same men could outline their policies and organize their business upon a far more satisfactory basis if the commissioner was appointed by a broadminded, non-partisan commission or board.

If the principles involved have been correctly stated, in what manner may we look for relief? Personally I believe that what may seem to be a radical move would eventually prove to be the safest and most effective; namely, to place the commissioner of agriculture directly under the Board of Regents and to be appointed by them. He would then stand in the same relationship to the agricultural, educational and police control interests of the state as the present commissioner of education, appointed by the Regents, stands to the educational system of the state. The Department of

Agriculture could be as easily organized with competent heads as the Education Department has been. I suppose we might honestly differ in opinion as to the control of our agricultural welfare by the Board of Regents. It seems to me there are the following very great advantages:

We are absolutely certain of securing on that board distinguished men of statesmanlike view and vision. They come from different walks in life and are geographically distributed; they serve without salary compensation, which in and of itself will perpetuate the appointment of good men. It is a system which prevails in educational work throughout our land. Any effort to change the administrative boards in educational movements to a paid system would bring degeneracy. A very strong effort was made in the city of New York recently to change the board of control into a small body of paid men in order, I suppose, to make more high salaried positions. Public opinion, however, promptly seized the question, instituted investigation and defeated the proposed plan. Very naturally the question would arise among the farming interest whether or not we would be wiser to select a separate board made up of men prominent in agricultural life and thought. Again I believe that would adjust itself and we should find as changes are made in the present Board of Regents that men with a different viewpoint would be appointed in order to adjust the board to its dual function if it should be found that the present type of men did not altogether fit the case. It would seem that a separate board, whatever might be its technical knowledge of the farm, might find itself embarrassed with the problems of organization and working efficiency which would more than offset its technical knowledge.

It is a safe statement to make once more that broad-gauged business and professional men will be fair to any question which confronts them, and if ignorant of technical knowledge upon which to base a judgment, they have sense enough to obtain that knowledge from an expert before passing an opinion. One board having control of all our educational work would prevent an overlapping, inevitable under control by two boards.

Another and most important reason for regent control:

We are interested in our public school system. Some of us be-

lieve that industrial education is finding short cuts in mental training.

If it is correct reasoning that a separate board could more effectively administer the agricultural affairs of the state, is it not also true that the appointment in the future of men having an agricultural training would have a wholesome influence upon the Board of Regents and hence upon the entire educational system of the state?

I have expressed my personal viewpoint and opinion concerning the Board of Regents. I have not, however, voiced the sentiment of many of our leading agricultural workers and thinkers who do not feel justified in supporting the plan unless a separate board of agriculture is established.

A leading authority and most influential man would prefer to have the present Board of Regents enlarged with agricultural representation. There is certainly much to commend in such a plan and if it can be carried out I think it would be a satisfactory solution.

There is almost a certainty that our agricultural institutions, great and small, as the colleges which are providing agricultural instruction, would welcome such a change. Educators always welcome steadfastness and perpetuity of men and policies. Very naturally they desire the cumulative effect of years of service because educators invariably make their business a life business. Educators are unselfish people, they must think of their student first or they are not educators.

The point of attack, if any, must therefore hinge upon the board of control rather than upon the principle involved.

Again, I believe that this move is real constructive work and is offered at a time when our agricultural welfare demands the strongest kind of centralized government and also at a time when the popular demand for political elimination is keyed to a high pitch.

To what extent it is wise at this time, to go into detail, is not altogether clear. First, there must be discovered a general plan. That we have made clear in placing the responsibility with the Board of Regents, expressing its authority through a single head, with a sufficient number of sub-heads to cover the work of the

various agencies necessary to carry on efficiently the educational and police work of the state. While too much detail may cause us to lose sight of the main issue, the plan may not command public attention and respect unless its workings are at least generally outlined.

It seems that we might copy the plan of our educational department and make three divisions each with an assistant commissioner.

Educational Department

- State College
- Veterinary colleges
- College of forestry
- Experiment station
- Schools of agriculture

Extension Department

- Fairs, state and local
- The county agent's plan
- Coöperative work
- State institutions farms
- Farmers institutes

Regulative Law and Police Department

- Pure Foods
- Dairy Inspection
- Animal Diseases
- Insect and fungi control
- Seed inspection
- Fertilizer and cattle feed control

According to this plan each institution in the state would be under its own non-salaried local board, working under regulations issued by the commissioner just as a local school board or a college board works under general regulations prepared by the educational department.

I believe that centralized state influence should determine the general function of an institution but at that point state control should cease. The local board should define the policy of the institution and then give the president, dean, principal or director a free hand to work out the details of that policy.

It would not be necessary to have the commissioner of agricul-

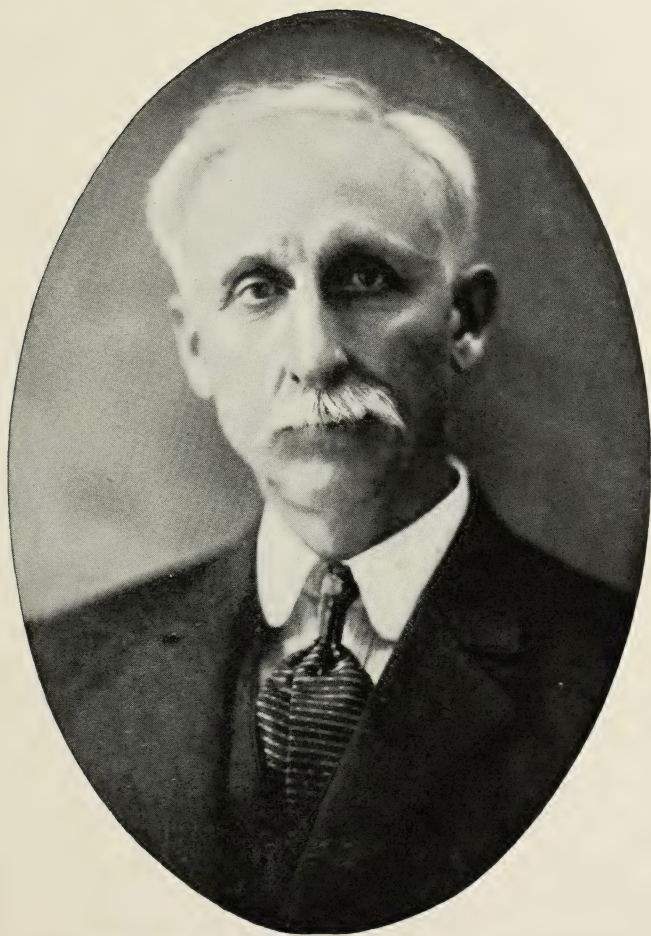


FIG. 252.—DEAN H. E. COOK, ST. LAWRENCE UNIVERSITY.

ture, or either one of his assistants, as members of the local board, any more than it is necessary to have a commissioner of education a member of a college or high school board. The function of each institution should be determined by the state board if state moneys are responsible for its support. But local autonomy in the administration of details must be under local control if efficiency and interest are to be maintained.

EDUCATIONAL DEPARTMENT

Under this department would be placed our technical education of secondary and college rank and experiment station control.

I have classified forestry under agricultural control. Some doubt has arisen as to the justice of this classification. I am unable to debate the question intelligently for or against.

EXTENSION DEPARTMENT

Under this department could be placed all educational field work. Under a centralized government the present force of field workers could be employed and still maintain their relationship to the local institution. The fairs, I think, should be an exception and be made the subject of specific legislation.

The management of the State Fair as a state institution is sound but it should be removed from political control. The State Fair is an educational institution and should have the same kind of control as a college, namely, a single director responsible to the state commissioner and appointed during good behavior. Why have a large board politically appointed with no known tenure of office? No business house or educational institutions would long survive under such a plan of management.

REGULATIVE LAW AND POLICE DEPARTMENT

Under this department would be placed the agricultural police work of the state; pure foods and their inspections, standardized throughout the state with local boards of health and the state department coöperating; also insect and fungi controls, animal diseases, cattle feeds and fertilizer control.

These assistants would be appointed because of fitness for their special class of work and should be paid such salaries as would

command broad-gauged earnest men, who would make these problems a life work and would not be responsible to a political boss or agency.

If rumors are correct, and there is much to warrant them, the federal government will soon make appropriations for agricultural educational work to states that will coöperate. Such a federal law will force upon the states the establishment of a central authority, for no doubt the federal government will respect state autonomy. This state authority must have a certain permanency not political, to which can be entrusted the federal funds.

The plan suggested is sweeping in effect but simple in its application. The readjustment would come to us as a pleasant dream and not as a nightmare.

To members of the State Agricultural Society and those who are actively interested in the agricultural affairs of the state, this plan for a strong, clean permanent direction and control of our rapidly developing open country business is respectfully submitted.

MR. GILES: It seems to me that Dean Cook has maintained his record of a lifetime in opening up some pioneer work. He has touched upon a topic that has been close to the hearts of all who are interested in the subject covered. It has come late in the sessions of this society. So radical a proposition cannot be safely disposed of, coming as suddenly as it does to many of us, at this particular time. I therefore move you that this whole matter be left to a representative committee of this society with power to speak for the society and consider the whole matter that has been so well covered in this paper. I suggest that that committee shall consist of Dean H. E. Cook, Dean W. A. Stocking, Jr., Commissioner Calvin J. Huson, Dr. Thomas E. Finegan, Professor F. W. Howe, Dr. W. H. Jordan, George W. Sisson, Jr., and W. H. Vary. Motion seconded by Mr. Schriver.

MR. GILES: The reason I did not make the motion that the committee report next year was because it is possible something may be done before that time. That we can not decide now so radical a move is evident to any man who ever sat in a deliberating body. I have undertaken to make that committee a representative committee of this society and the interests involved and I do not

want to restrict them, so I give them the power and if it seems wise to go into this work before our next annual meeting they can do so.

MR. C. W. BURKETT: There is one point that arises in my mind. This society, in accordance with the words of the president last night, represents the agricultural people of New York. This committee represents the official side of New York and only indirectly the agricultural people of New York. I for one do not believe that it is wise to do that. There ought to be representation on this committee by persons who have no connection whatever with the official affairs of our institutions. There are various sides to be considered. If the committee is going to be appointed with power, certainly there are other interests; certainly the democratic people themselves outside of these officers should have representation on such a committee. If a committee is to be appointed it ought to be enlarged to take into consideration these other affairs and to represent public opinion in its big and broad way.

MR. SISSON: The motion is before you and is under discussion. We want to give the committee the widest possible latitude for securing the right action. Is there anything further?

MR. TUTTLE: If you will permit me, I will offer an amendment striking out the power. The committee named is a splendid one, but this is a big question and it is not one that will be solved within a year; it will not be solved in several years, and I think it will be wise to have that committee digest this whole subject, as Dean Cook has indicated. He has been going over this for a long time and is not yet sure where he stands on the one central point of unification. Let that committee work over the way in which this is to be brought about and let them present a report to this society at its next annual meeting. Then we will be likely to go safer than if we try to do something before we are actually ready to do it. I offer an amendment striking out the power but leaving the motion to stand otherwise as above.

Amendment seconded.

MR. GILES: Mr. Chairman, will you allow me to accept the amendment with the greatest of pleasure and I see the wisdom in some of it. Just a word in answer to Mr. Burkett. There is

always danger in having too large committees on so important a subject. We have placed on that committee the very eminent president, acting president of this association who, without any flattery whatever, I may say at this time has brought the State Agricultural Society up to the period of its greatest efficiency as we are now closing — its very best. We have the democratic representation and we have the full representation of this State Agricultural Society in our very worthy president who is now laying down the cares of his office.

MR. SISSON: You have heard the amendment, which has been seconded. The amendment has been accepted by the original mover and the question is upon the original motion of Mr. Giles.

Motion carried.

MR. SISSON: As a matter of business we must now receive the report of the Auditing Committee which looked over the books of the treasurer.

MR. WAINWRIGHT: The committee appointed to audit the treasurer's accounts have carefully gone over the same and find them correct.

(Signed) Richard T. Wainwright,
C. Fred Boshart.

Report accepted.

MR. SISSON: We are now ready to receive the report of the Committee on Resolutions.

REPORT OF COMMITTEE ON RESOLUTIONS

JAMES W. WADSWORTH, JR.

I am authorized by your Committee on Resolutions to present their report for your consideration. As a foreword, permit me to say that your committee feels that at best its work has been somewhat fragmentary owing to the manner in which the program of yesterday and today has been arranged and carried out. It has been impossible for the Committee on Resolutions to prepare what might be truthfully called a final report tending to digest all of the suggestions placed before this society in the reports of standing committees or in the way of resolutions endorsed by individuals.

It also is apparent that subsequent to the preparation of this re-

port other suggestions may be made and in all probability will be made by men who are to address this society this evening. It is apparent also that this afternoon, since your committee to the best of its ability finished its labors, two or three other important subjects have been placed before the society. It has been impossible for us to give attention to the matters presented this afternoon. We regret that at the very last moment — in fact since we have adjourned and have come here to submit our report — additional suggestions have been handed to me as chairman, which we of course find it impossible to discuss with any degree of intelligence. I anticipate, however, that the society is in such a frame of mind that the discussion of these things which we have been unable to handle will be tolerated at a later time.

The question arose in the meeting of your committee as to the manner in which this report should be considered by the full house. I may say that we have here collected, after some sifting processes, eight specific topics, seven of which will undoubtedly be open to discussion. The eighth is simply a direction to the Law Committee of the Agricultural Society. We have felt that perhaps the membership here would be better pleased and would have a freer hand if the seven topics should be taken up seriatim and be either adopted or rejected one by one, rather than for your committee to endeavor to put through the entire report by one vote. So, if there is no objection I would suggest that as these topics or resolutions are read, discussion may be had upon each one if the members desire discussion and a vote may be had upon each one separately.

WHEREAS, We have no general system for marketing farm food products in the state of New York for either local or general markets, and

WHEREAS, In the absence of a marketing system, we have no standards of grades and measures, no inspection and no system of prices adjusted on the basis of supply and demand, and

WHEREAS, Many of our perishable products are manipulated by cold storage interests and dealers or jobbers in food supplies, with the result that we often have products of excellent quality rotting on the farms, while the city consumer is paying for the same or an inferior grade of the same article the highest prices demanded in times of scarcity, and

WHEREAS, In particular, the production of liquid milk for metropolitan markets is one of the great industries of this state, and

WHEREAS, Although the present price of milk to the consumer is high, yet the price paid the producer by dealers and distributors is vastly below the actual cost of production, and under such conditions producers are being forced out of the production of milk as a matter of economic necessity, and

WHEREAS, When this reaches such a condition as is threatened, city consumers will find a short supply of milk, and a higher price for the limited quantity they will be able to order and secure,

Therefore, be it resolved, That it is the conviction of the members of the New York State Agricultural Society that the state of New York should provide agencies and means to

Help organize producers of the state into coöperative market units.

Help establish marketing, packing and grading depots and cold storage plants.

Help establish slaughter houses and to supervise their management.

Help provide means to preserve waste and surplus products in cold storage warehouses, or otherwise; and to advise as to the shipping of farm products to centers where demand is strongest and best prices prevail.

When our liquid milk, green fruit and vegetables, or other perishable products, are selling on the general markets of the state at a price to the producer out of proportion to the price to the consumer, and there is indication that the food product or products are being manipulated or controlled by middlemen to the disadvantage of the producer and consumer; then it shall be the duty of the state agency referred to, to call a conference of interests representing producers, consumers, wholesalers and retailers of the products under review and determine, for purposes of publicity, a fair, equitable price for such food products to producers and consumers respectively, with a margin between sufficient to cover the cost of economic distribution, and a fair per centum of profit for the business of such distribution.

The committee recommends the adoption of this resolution as an expression of opinion on the part of the society.

DR. JORDAN: I should like to have the chairman of the committee state again the conditions under which the state shall attempt to regulate prices.

MR. WADSWORTH: The chairman would state in explanation that your committee is of the opinion that the state will find itself unable to fix prices. In the first place under the constitution of the state or of the United States, the state has no power through its law making body to infringe upon the right of private contract. Therefore, a state can not delegate to one of its agents the power to compel the producer to take a certain price for his product or for the consumer to pay a certain price for the product he is about to consume. We have inserted here, however, a provision that states in effect that in the event of the producer and the consumer being unable to make their rights felt and recognized by the middlemen — and I am reliably informed that is very often the case — the state agency under whatever name we shall call it shall make public the justice of the situation in order that public opinion may come to the assistance of the producer and the consumer and tend to drive the middlemen at least to recognize the justice of the situation, with the ability of the state to say to the middlemen, “If you do not recognize the justice of the situation, I shall exercise my functions by going into the northern part of the state (for instance) and organizing a coöperative society of milk producers, helping them to organize themselves into such a society, helping them to establish marketing facilities in the city of New York, and we will enforce justice by our own efforts.”

I desire to assure Dr. Jordan and the the members of the society that the committee does not advocate for one moment the fixing of prices by statute but simply calling upon the force of publicity and the adding of the prestige of the state in order to empower, as it would be here to help, farmers organize and help consumers organize in order that justice may be done as between the two. There is nothing revolutionary in this proposal.

MR. E. O. HOLTER: I am a newly elected member of this society and know very few of you people. I am a farmer at Mt. Kisco and a lawyer in New York. I have been thinking over this matter, as we all have, for a long time, and have some pretty fixed notions on the subject. I have heard the resolution just read

and think this a most important moment of this meeting; it is a very vital moment. I favor the resolution. I favor state aid to the farmer and also to the consumer. I think the farmer needs to become more scientific and I have copied the remarks of a well known authority on rural economics, which are as follows:

"The farmer has the most scientific job in America,—while the average factory makes important use of one or two sciences, the average farm makes important use of half a dozen or more. The farmer must make, save or lose money by the degree of skill with which he applies the sciences of animal nutrition, animal hygiene, soil chemistry, soil physics, plant nutrition, plant hygiene, to say nothing of curing, housing and preparing his product. Besides, he must be a gardener, a poultryman and fruit grower."

The conclusion is:

"That the job is too big for one man, and that what is needed is either corporation or coöperation—organization by which he will be enabled to hand over parts of his job to specialists."

Another eminent writer on the same subject, mindful of the limited success of farm coöperation as heretofore practiced, argues that "The coming development of our agricultural industries must be along the lines of corporation organization and operation," giving as a reason that, "A corporation alone can determine and enforce a permanent policy, establish a permanent organization and negotiate and maintain constant credit."

I am in favor of the organization of a corporation with sufficient capital and sufficient management to farm economically and market the products scientifically. Such a corporation could colonize the unproductive farms of New York State on coöperative lines, leaving the final ownership of the land in the hands of the efficient farmers, in no way destroying his independence and not forming a so-called trust, so objectionable to farmers. What is wanted is business organization, which will be able to do the things which the individual small farmer can not do, even though he is told by state officials what to do. Real business ability, capital, and a central organization in New York City, is what is wanted, and this can not be supplied by state officials, unless the state decides to go into the business of farming.

Mr. President, it seems to me that this is a very important thing, and I hope the resolution will be adopted.

On motion the resolution was adopted.

WHEREAS, We appreciate the general demand for a system of mortgage credits for the accommodation of such landowners as may wish to avail themselves of its privileges, and

WHEREAS, The law under which the savings and loan associations of this state are organized provides a satisfactory basis for the organization of local associations, except that they do not afford the means of ready capital,

Therefore be it resolved, That we favor the bill prepared to amend the Savings and Loan Association Law to make it adaptable to the needs of farmers by the creation of a land bank, which will have the authority to sell debentures based on first mortgages, to furnish ready money to finance the mortgage loans.

On motion the resolution was adopted.

WHEREAS, The practical working of the produce commission bill has demonstrated that houses doing a commission business ought not to be allowed to buy consignments for their own account; and the rightful interests of shippers demand that the commission merchant be obliged to keep a record of sales, showing to whom the goods were sold and the price paid therefor, and to make returns promptly as sales are made, in whole or in part,

Therefore be it resolved, That the New York State Agricultural Society recommends the passage of a bill to revise the Commission Law, incorporating the above-mentioned provisions.

On motion the resolution was adopted.

WHEREAS, The producers of this state can only secure better prices for farm products by free entry into the markets of the state, and the consumer can only hope for larger supply of food-stuffs at lower prices by reorganizing the method of receiving and distributing such food products in the cities of the state,

Therefore be it resolved, That this society recommends to the legislature the enactment of such legislation as will permit the municipalities of the state to establish suitable markets, particularly terminal wholesale markets, to which the producers may consign their products to be sold at auction under the supervision of the various municipal authorities, to the end that the food supply may be distributed from producer to consumer at minimum cost and to the advantage of both.

On motion the resolution was adopted.

Resolved, That a law be enacted providing that "All apples and pears grown in the state of New York, packed or offered for sale in barrels, shall contain 90 per cent. of fruit equal in all respects to the face of the barrel;

That every barrel of apples or pears grown or packed in the state of New York shall have marked plainly on the outside face head of the barrel the name and address of the packer and such name shall not be removed or obliterated, except when such barrel of apples or pears is repacked, in which case the name and address of the repacker shall be substituted for that of the original packer."

MR. MORRELL: I suppose as a matter of fact 95 per cent. of the apples as packed in barrels in New York State, are dishonestly packed. This is a subject I have given a great deal of attention to for the past fifteen years. I have proven beyond a doubt that an honest pack pays. In the first place it is right morally; in the next place it is right commercially. I shall give you an illustration: A man came from Canada and bought a large crop of apples in our state. He packed the No. 1's honestly. The No. 2's he crated up with the fancies. He marked the No. 1's "Canada apples." He marked the No. 2's, filled with culls, "New York State apples." I know of a box of apples that took first premium in one of our institutions that was dishonestly packed. This thing has gone on for years and years. We have talked about it but we have never done a single thing. Canada apples sell abroad for from 25 cents to 75 cents more than our apples do. They are no better apples. It is a matter of fact that New York State produces the best apples for flavor grown in the United States. If I may say a personal word, I have been packing honest apples for the past 15 years. We have been packing them in three grades as honestly as we can pack them, baring mistakes we have made accidentally, and we are marketing them in three grades. We have been selling a 2-inch apple for \$3.25 a barrel, and for a 4-inch apple we get \$4.75 a barrel. So we can compete with the whole United States if we pack an honest barrel. Do not be misled by this box question. There is a place for box apples, but the apple that will lead in New York State must be a barrel apple from now on. I hope you will pass this resolution.

On motion the resolution was adopted.

With respect to the problem of taxation, this society desires to warn the rural citizens of the state against the movement for a single land tax. We believe this principle, if applied, would be destructive to the interests of the farmer; and as a body, we protest against any legislative tendency in this direction.

MR. TUTTLE: This society may not understand, and perhaps I do not understand exactly what that resolution means, but I think I understand something about it and the rest do not understand it as I do. I am not a single taxer, but I understand a little of the single tax principle — that it means that land as land is valueless but that when men improve that land, those improvements are valuable and add to the value of the land. The single tax principle is that the improvement which human beings have put on to worthless land, and all land in that sense was originally worthless, shall not be taxed. That is applicable to farm land. There is another way in which land values become enhanced; that is, by the operation of what is known as the unearned increment, or the value which attaches to a piece of land because your neighbors, or the people surrounding you, have improved their lands and therefore your land has enhanced value although you may have done nothing to it. The single tax principle, I believe, says that the unearned increment shall be taxed, because the owner of the land did not create that value but it was created by the community at large, or people other than the man who owned the particular piece of land. Take, for instance, a lot on Broadway, in New York City, which was purchased about fifty years ago, or any other time in the past. Nothing spent on it, but other people have spent money and the unearned increment, or value, attached to that land, greatly enhances its market value. Single tax says tax off that unearned increment, it does not belong to the owner of that land. If you please, take a piece of land in the country and if it never has had a single dollar spent on it to enhance its value, but the surrounding country has been improved, that idle land may have an unearned increment of value attached to it, but the owner of the land did not help create that value, he did not do anything that made that land more valuable; therefore, tax off that unearned increment for the benefit of the people of the state or of the county; but do not tax anything that is the result of human labor in creat-

ing values. I have never seen this bill, but I believe it has been introduced in the legislature. I understand the principle of that single tax business to be that farmers would be almost absolutely exempt from taxation. Therefore, we are being used as a lot of "suckers" by people who live in the city who do not want to have the unearned increment taxed off and they want to see if they can stir up a sentiment among the farmers by getting them to say your land will be confiscated if you have a single tax on land.

I hope I have made myself clear enough so you know how I feel about it.

I move you, Mr. Chairman, that the resolution be laid on the table. (Seconded.)

MR. WADSWORTH: I hesitate about rising, because ordinarily a motion to lay on the table is undebatable, but with your permission I will say something. I can not personally pose as a student of this problem. Your committee has received from the Committee on Taxation of the society its report, and it is fair and correct to say, that this section of our report is taken from the Report of the Committee on Taxation.

As to the merits of the proposition for a single tax, I imagine we could discuss that here all night and all tomorrow. It appeals to me, as a dweller in the country, this way. The situation of the owner of property in the country is decidedly different from the situation of the owner of property in a great city. But I know of no situation in the country that can possibly be compared to Broadway or any other great thoroughfare in a great city, where values rise rapidly. If I am not very incorrectly informed, the opponents of a single land tax are prepared to advocate that land is about the only thing to be taxed, and it occurs to me that the farmer has all his property and all his capital invested in land alone as a general rule. I can see no benefit to a rural community by an attempt to go down among the hills and valleys of that community and ascertain what the unearned increment is. It may be said that the building of a state highway will help create an unearned increment on the farms which that highway skirts, but I notice that the men who live on those farms and who presumably are going to be the possessors of somewhat more valuable farms by reason of the building of that road, presumably

contribute to the cost of that road. If I am not mistaken also the immediate neighbors of that road are especially assessed, or the assessments on their land is raised by the tax authorities, so that they do pay for whatever unearned increment may be charged or credited out to that farm. I can not personally say, and I am not speaking for my colleagues on the committee because we did not have any exhaustive discussion of the matter, but I can not see but what it will be a danger to the owners of farm lands in this and every other state of this union, if they eventually are going to be called upon to pay a large burden of taxation, because they are the only class of people who can not possibly hope to escape paying taxes on their land. When it is proposed that only land shall bear the burden of taxation, in my humble voice I would like to say, "We will stop that kind of a proposition if we farmers can stop it."

MR. GILES: I do not wish to impose upon this meeting at this late hour, especially discussing a privileged question, I just want to say, while admitting not being a thorough student of the matter, the idea that the resolution undertakes to cover is really a movement, strictly a city movement, as Mr. Tuttle has fairly well defined it. It is done, as I understand it, to prevent speculation in real estate in the city, but when once put in force in the city it will readily carry out into the country and do the things that the chairman of this committee has so well worded. I for one believe that the function of this New York Agricultural Society is not to meddle with the city problems but to interest itself in the protection of the farmers of this country and I do not believe it is wise to adopt the cowardly motion of putting upon the table a resolution to protect the farmers of the state.

MR. TUTTLE: I think I would be entitled to a word in view of the remark that it was a cowardly motion. I will resist as much as any man in this room taxation upon the farm lands in this state. I own 200 acres of farm land and it is taxed high, and if I did not believe that the proper application of the principle of relieving my farm lands from taxation to the extent that they have value because of my improvements, then I would not oppose the adoption of this resolution; but I have told you that it does not mean taxation on value which is the result of human labor, but it means

taxation because of the unearned increment that has accrued to the owner who has done nothing.

MR. SISSON: The question before us is upon the amendment of Mr. Tuttle that this resolution be laid upon the table.

On voting, the amendment was lost.

MR. SISSON: The question is now upon the original motion to adopt the resolution.

On voting, the resolution was adopted.

WHEREAS, There is grave doubt as to the wisdom of having established several state schools of agriculture and of forestry without consideration of a previously developed comprehensive plan for the extension of agricultural education,

Therefore be it resolved, That this society deprecates this random expenditure of the people's money without system and without comprehensive vision, and urges upon the legislature the withholding of additional appropriations of this character until a definite policy for future development has been established.

On motion this resolution was adopted.

RESOLVED, That the Law Committee of this society be directed to prepare such bills as are necessary to carry into effect these recommendations and providing sufficient appropriations for the work recommended, and arrange for their introduction in the legislature.

On motion the resolution was adopted.

By MR. FRASER: *Resolved*, That the New York State Agricultural Society is opposed to the provisions of the McKellar bill now before Congress, limiting the storage of food products to ninety days, also to those sections prohibiting the restorage of products once they have been withdrawn from storage.

On motion the resolution was adopted.

[The following resolutions were omitted from report of Committee on Resolutions, through error, and were approved by Jas. W. Wadsworth, Jr., C. W. Burkett and John J. Dillon, but did not come before the Society for action.]

WHEREAS, The bill introduced by Mr. Adamson, now pending before Congress, provides that no female calf, heifer or cow under seven years of age, or any male calf under two years of age, or the carcass or flesh of such animal, shall be slaughtered, or sold, or

purchased, or offered for sale or transportation, in any state, territory or district of the United States, etc., etc.

Resolved, That this society is opposed to the passage of this law, as the internal conditions of this great dairy state would not warrant so radical a change, and it would be an utter impossibility for the dairymen of the state to raise the entire offspring from the dairies for a period named in the bill.

WHEREAS, The bill introduced by Mr. Hamilton, now pending before Congress, provides, that no calf can be offered or sold for interstate shipment under six weeks of age.

Resolved, That as the state of New York has an admirable and very effective section of its agricultural law fixing the age of a veal calf intended for slaughter, to be used as food, at four weeks of age, this society is opposed to the enactment of the said bill introduced by Mr. Hamilton, as it discriminates against calves raised and sold for veal in New York State; that is, calves grown in the state and tributary to the New York Central lines, which have their terminals in New York City, could be slaughtered and sold for food at four weeks of age; whereas the calves grown in the state and tributary to the West Shore, the Erie, the Delaware and Hudson, and Lehigh railroads, with terminals in Jersey City, being calves in interstate shipment, intended for slaughter and to be used for food in the city of New York, would have to be six weeks of age, to be ferried across the river and sold on the same market with four-week-old veal; and it is further

Resolved: That this society recommend that the calf bill introduced by Mr. Hamilton be amended to read four weeks instead of six weeks, conforming with our state law.

DR. BAILEY: I should like to rise, Mr. President, to a question of personal privilege and explanation. I very much appreciate the action taken by this body in the election of myself as President of the society. It was done when I was not in attendance and there are such circumstances, sir, that it is utterly impossible for me to accept this honor, and while I appreciate the action that has been taken, nevertheless I must decline to accept the election.

DR. JORDAN: Dr. Bailey is elected as president of this association and what he has said is in the nature of a resignation or declination to accept the office. I know something of the impera-

tive reasons why he should take this step, and I move you, sir, that his declination be accepted with regret.

Motion seconded.

MR. SISSON: Gentlemen, in putting this motion it is needless for me to say that I have not put a motion here at this meeting, or any other time, which I so greatly regret to do. I have felt that Dean Bailey represented in his personality or natural leadership the higher agricultural life of this state and I hope the time may come, and that in the not distant future, when he will feel that his matters are in such shape that he can give to this society what we know he is capable of giving, and that is the leadership which we all desire to have him take up. But as the matter stands, and knowing what is behind it, I will ask you to act upon the motion of Dr. Jordan that his resignation be accepted.

Motion carried.

DR. JORDAN: I suppose it is, under the circumstances, hardly possible to refer this matter back to the Committee on Nominations.

MR. TUTTLE: If Dr. Jordan will permit me, the committee had an intimation that possibly this contingency might arise. We refused to accept it as a reason for not presenting that name in nomination, hoping that when Dr. Bailey saw that we wanted him so much that we would not take anything except his personal declination he would consent to serve. In view, however, of the possible contingency the committee considered what it might do if Dr. Bailey refused to act as president, and I have the pleasure of submitting to this society a nomination for that office, of a man who has earned the highest honor of this society by his devotion and labors and intelligent leadership in a subordinate position, and that is the person who now holds the office of first vice-president of this society, Mr. John J. Dillon of the *Rural New Yorker*. I present Mr. Dillon's name under the conditions that I have indicated, as having been considered for the contingency that has arisen.

MR. SISSON: The Chair is ready for an enabling motion.

MR. SCHRIVER: I move, Mr. President, that the secretary be authorized to cast a ballot for this society for Mr. John J. Dillon as president.

Motion seconded and carried.

MR. SISSON: I hold the ballot that has been cast and declare Mr. John J. Dillon elected president of this society.

MR. DILLON: I can not say anything on this subject now, except one thing — I think you have made a mistake. I have been a hard worker all my life, especially on the farm, and I have been willing to work in this society under other leadership, but I think you might better leave me right there where I was working. This thing has come right up through Dr. Bailey's declination of the position, and I have been embarrassed to know what to say or what to do, so I have kept still. This society has had very efficient leadership for a number of years. It has developed some very important work and I am frank to say that I feel my own limitations as to going on with the leadership of the standard of work that these men — especially the two men who have preceded me in this capacity — have been able to put in operation, and I would be utterly incapable of going on with it alone. If the men of the association and those who have been working with it and for it during recent years will continue to do so during the next year I will simply be glad to work in harmony with those men who have been making the work effective. I will do my best and I want to ask those men who have been doing the bulk of the work now to come in with us and stay with us that we may be able to accomplish something.

I appreciate the honor of being elected to the presidency of this organization more, perhaps, than any other one position that could be offered me in this state; a position which involves work outside of my business. If furnished a salary outside of my business I would not for one moment undertake it, because I have three men's work in my own business — three hours' work for every one hour I am able to devote to it, but I am very glad to sacrifice some of it for the work which you have imposed upon me here, and I shall at least do my best to give you an honest and efficient service.

MR. WADSWORTH: I as an individual have been requested by a very well known guest of the society who has addressed us to introduce this resolution:

WHEREAS, An amendment to the charter of the city of New

York, creating a department of markets, will soon be presented to the legislature, and

WHEREAS, The producers of this state are vitally interested in the character of this legislation and the officials who will have charge of the department, as well as the powers and duties of such department,

Therefore be it resolved, That the president of this society be empowered to appoint a committee of six members thereof to confer with the mayor of the city of New York with a view to submitting such recommendations as to the organization and conduct of said market department as in the judgment of the committee will insure proper protection to the interests of the producers of food products in this state.

On motion the resolution was adopted.

MR. SCHRIVER: I desire to have put upon the record of this society, of this meeting, what seems to me to be fair. I am in favor of carrying flowers to a man while he is still alive; I greatly prefer that to putting them on his coffin after he is dead. We have had for the last two years; we have had in the whole history of this society many faithful and well qualified men as its leaders. We have had especially good leadership during the past two years. I understand the personal modesty and hesitancy with which our present chairman accepted the position two years ago. He has done most excellent work. This is certainly the largest, most enthusiastic attendance we have ever had at our meetings, in my memory, largely the work of our chairman, and I move that we express in as emphatic a manner as we can, by a rising vote, our appreciation of the services of George W. Sisson, Jr.

Motion unanimously carried.

MR. TUTTLE: With the election of Mr. Dillon as president of this society, the office of vice-president for the First Judicial District has become vacant, and I wish to nominate for that position a member of this society, of recent acquisition to this society, but nevertheless I feel a good acquisition. I nominate Mrs. Julian Heath as vice-president.

Mrs. Heath was elected by vote of the society.

MR. GILES: It is only a matter of form, but it seems to me there is one formality we have overlooked. We have adopted the

report of the Committee on Resolutions seriatim. I move that we adopt the report of the Committee on Resolutions as a whole.

The resolutions were adopted as a whole.

MR. WHITE: I move that we extend a special invitation to the Farm Bureau agents to attend our annual sessions as a whole.

Motion carried.

MR. SISSON: We convene this evening in the Senate Chamber at 8 o'clock, where Mr. Huson will preside and Governor Glynn and Chancellor Day will address us.

EVENING SESSION

MR. SISSON: I have the honor to introduce to you Calvin J. Huson, Commissioner of Agriculture of our state, who will act as presiding officer of the evening.

COMMISSIONER HUSON: I appreciate the honor, I assure you, of being selected to preside over this session of your deliberations. A year ago, as you may remember, Governor Glynn, then Lieutenant-Governor, presided over one of your sessions. When he assumed the duties of the Chair he announced that it was not the function of the presiding officer to make a speech and then proceeded to make one and, as you will recall, a very excellent one. I do not intend to imitate the example he set on that occasion. I know you are anxious to hear him now that he is the chief executive of the state and is attempting to work out in a very practical way some of the problems you have been considering during the past two days, and I now have the honor of presenting to you His Excellency, Martin H. Glynn, Governor of New York.

ADDRESS

HONORABLE MARTIN H. GLYNN

I have in mind to attempt something very original tonight.

As long as I can remember there has been one commodity with which those interested in agriculture have been abundantly supplied. The farmer may not have received any particular attention in the distribution of favors. No one has been particularly

anxious to take over his mortgages for him, or to harvest his crops; no one has given him rapid transit from the farmhouse to the corn-field. No one has given him libraries; no one has presented him with art museums in which to wander in his hours of opulent leisure. But to make up for these deprivations, all with whom he has come in contact have generously supplied him with advice.

Wherever he has gone the farmer has found a host of willing friends, ready and anxious to tell him what to do. Commissions and committees have descended upon him and have refused to leave until they had told him how his affairs should be ordered.

If rain and sunshine could be as surely counted upon as the advice that is showered upon his head, the farmer would never have cause to complain about the weather. Consequently, though it may be considered daring, I shall make a manful effort to refrain from adding to the volume of helpful words with which you are all so familiar.

In the first place, whatever it may have to do with the case, I do not feel competent to advise other men about matters of which they know more than I do. Although part of my life, and a very pleasant part, was spent in a farming community, my knowledge of agriculture is neither personal nor wide enough to make my opinion on agriculture of much value. All I can do for the farmer is to try to help him in quarters where he tells me he needs assistance. I frankly confess my inability to advise him.

Although my knowledge of the methods by which crops are sown, raised and harvested is necessarily limited, there is one phase of agriculture to which I have devoted considerable attention. Because reading and observation have convinced me that the farmer's place in the economic life of the nation was all important, I have felt it my duty to acquaint myself with the farmers' economic problems and I agree with those who believe that national prosperity and happiness depend upon the prosperity and the happiness of those who feed the nation.

I have studied the American farmers' situation with more than ordinary care, and, as a New Yorker, I have naturally been most interested in the farms and farmers of New York. From what the farmers of New York have told me, and from what other information I have been able to gather, I have reached the conclusion

that there are two agricultural problems which the state as a state must solve.

The first problem is how more of the state's lands may be placed under cultivation.

The second problem is how the produce of New York's farms may be cheaply and easily distributed among the consuming population of New York.

The first problem is the more important and the more difficult. It is a problem vital not only to the farmers, but to every citizen of New York irrespective of his occupation. For the last twenty years the nation has seen a gradual and alarming rise in the cost of the necessities of life. A rise in necessities always implies a rise in everything else. The man who must pay more for his food, clothes and shelter must charge more for the work of his hands, and for whatever he produces. There would be nothing particularly distressing in the increase in the cost of living if every man's income had undergone a similar increase. We know that this has not been the case, and in seeking to bring about a proper readjustment of conditions, the nation and the state must either increase wages or reduce the cost of necessities.

To reduce the cost of necessities we must increase the supply. This is the first law of economics. And since food is the first necessity of man, the most imperative problem which faces the state is to increase the supply of food it produces. To do this the state must enable the farmer who is already on the land to increase the number of acres he is cultivating, and must persuade men not already farmers, to turn from over-crowded cities and over-crowded occupations to the waiting and vacant farms.

Time at last makes all things even, but New York can not wait for suffering and distress to force its citizens out of its towns and upon its lands. It can not wait for cruel necessity to bring the city dweller into the country. By every means in its power it should hasten this inevitable transformation.

New York is doing a great work now in educating those who seek to become farmers in the science of farming, but it must go further than that and make it easy for farmers to increase their holdings and for men who are not farmers to become owners of farms. And the only way in which it can bring this about is to supply the

farmer and the intending farmer with some easy method of obtaining credit.

There are few problems which this new land of ours must face which have not already confronted the older nations of Europe; there are many places where this country can save itself from mistakes by observing what methods and ideas have proved successful in similar circumstances abroad.

Germany, France, Italy, Holland, Sweden, Great Britain and Russia, have all been forced to help their farmers in order to feed their people. They have been obliged to devise systems of credit whereby their farmers could buy land and improve the soil, and it is time that the United States, or that portion of the United States which is becoming crowded, should look across the ocean to profit by the experience of others.

New York must give to its farmers and to the men of small means who desire to become farmers, some safe and sensible method of raising money for legitimate needs. If New York wishes its lands cultivated it must give the man who has thrift, intelligence and industry but no capital, a channel through which he can obtain the land he is willing to cultivate.

One of the reasons that this country's great commercial enterprises have flourished and prospered is that the means of obtaining credit has been abundantly supplied to them.

The whole modern financial system is based upon credit and no single division of industry can produce satisfactory results unless it is equipped to obtain the same credit which is at the disposal of other industries.

It is a lamentable fact that agriculture is at distinct disadvantage in the matter of obtaining credit. While the nation's farms represent the best security in the world, the nation's farmers are unable to obtain the easy and flexible credit which this gilded security warrants. It is difficult for the farmer to raise money quickly and at easy rates of interest on his property. It is hard for him to secure the money necessary to move his crops. In other words, after he has labored to produce the most necessary article of commerce, he finds himself unable to turn his certain profits into cash.

These and similar considerations have led me to investigate



FIG. 253.— MARTIN H. GLYNN, GOVERNOR OF NEW YORK.

the systems of agricultural finance which have proved successful abroad. I have studied the Prussian land bank and mortgage associations known as "Landschaften," the "Raiffeisen" and the "Schulze-Delitzsch" systems in vogue in various parts of Europe.

I have noted how easy it is there for the farmer of small means to obtain the money he needs for farming purposes expeditiously, and at easy rates of interest, and have marked how the introduction of these systems has been followed by a revival of interest in agriculture. I see no reason why New York can not avail itself of some such plan to hasten the exodus from the city to the farm and to give the New York farmer a financial system which will make it easy for him to dispose of his products or to increase the amount of land he is able to cultivate.

So convinced am I that the farmers of New York desire better credit facilities, that I shall urge upon the legislature the advisability of proper legislation in this direction.

This is not a proposition that can be finally decided in a moment. The opportunities to do a great and lasting good for the agricultural development of New York are too large for any hasty action, but with the farmers of the state unanimous in the demand for that easy and flexible credit to which they are entitled, I have no doubt that the legislature will be prepared to act in the matter without loss of time.

With the farmer, the Governor and the state in general all anxious for an increase in agricultural activity, there is no reason why the means for making that increase an actual fact should not be placed at the disposal of the citizens of New York.

The second problem which the friends of agriculture are called upon to solve is a problem which is more or less involved in the problem of credit which I have just discussed. It is the problem of finding a satisfactory method of getting the farmers' products from the farm to the consumer. Those in a position to know, declare that for every dollar's worth of food which the public buys, the farmer receives only thirty-five cents. Sixty-five cents of the dollar is absorbed in distribution. The railroad takes some of it, the commission merchant takes some of it; the retailer takes some of it. Among them they take nearly twice what the man who has labored to produce the food himself receives. It is preposterous

that such a situation should exist in a state which has the splendid facilities at the command of New York.

New York's farmers have a great consuming population at their very gates. They have the finest system of railway and water transportation in the world and these facilities will be even better when the barge canal is finished. The railway, the commission merchant and the retailer are all entitled to a fair profit for their services, but when they take 65 per cent of what the public pays for its food there is something wrong with the system by which the farmers' products are marketed.

The chief reason for the small percentage which the farmer receives is the fact that he sells as an individual out of touch with the man to whom his products eventually go. To increase the farmer's profits and to decrease the consumer's outlay, the farmer and the consumer must be brought into closer contact. If the farmer continues to sell as an individual, it will be practically impossible to make any progress. The markets where his products are bought are too different and diverse for him to deal personally with the consumer. It is obvious, therefore, that if a personal relationship is to be achieved, it must be obtained through the coöperation of many farmers acting as a unit.

There is little doubt that the facts I have just stated are understood and appreciated by every farmer in the state. Many of them have expressed their keen regret that there is no general movement to form coöperative selling societies among farmers, in order that each member of that coöperative society might dispose of his products to the best advantage. Scarcely a farming community in the state has not at some time or other expressed a desire for such a society. There is a great and growing sentiment throughout the agricultural districts of New York for coöperative organizations which will assume the responsibility of marketing the farm products, but this sentiment must be crystallized and given a concrete expression. Someone with initiative in each community must take it upon himself to organize a coöperative association and where there is no one man ready to take the task upon himself, the state itself should provide energetic organizers for sections that desire their services. With coöperative societies receiving the products of each individual farmer, sorting and pack-

ing them, arranging them and keeping in close touch with market prices, most of the farmers' difficulties, so far as the consumer is concerned, would disappear. The consumer himself would feel that he was getting his food at the lowest possible price and the farmer would be assured that he was receiving full value for his products. Furthermore, the situation which now exists, where the individual farmer ships goods to a distant market and his neighbor sends to the same distant market for that very product, would be at an end. There is doubtless not a single man in this audience unable to cite an instance where a farmer's fruits or vegetables have been shipped out of his community only to return to some neighboring consumer in a few days. The reason for this is obvious. The village grocer can not depend upon individual farmers for his supplies. He must go to some large market which is supplied by a number of farmers for the certainty that he will secure what he needs.

With coöperative selling associations in each farming community which at all times would have a considerable supply of various farm products on hand, the local grocer would not be compelled to go far afield for what he wanted.

Consumers in the country no less than consumers in the city would find a coöperative selling system of great advantage and the farmer would at least have the satisfaction of knowing that the labor of his hands was receiving the reward that it deserved.

New York already has upon its statute books laws which should be of great advantage to the farmers of the state if they would take proper advantage to them. The credit union law, enacted last year, is calculated to take care of whatever short time loans the farmer may desire to make. It is a step in the direction of better agricultural credit facilities. But as yet, there has been no considerable attempt to take advantage of it. The coöperative corporations law, passed last year, placed the state on record as in favor of the coöperative idea, both in buying and selling. In the six months of its existence this law has made progress. Coöperative societies have been established in Columbia, Schenectady and Delaware counties and another is about to be organized in Oneida county. But this law, the credit union law, and the further legislation that the friends of agriculture favor, need a broader understanding.

It is my purpose to urge the legislature to appropriate from \$25,000 to \$50,000 to enable the Department of Agriculture to bring these laws home to every farming community in the state.

Laws are useless unless those who are supposed to profit by them realize their opportunities under the law. Vigorous organizers, keen propagandists, can do a great work in hastening concerted action in relation to these laws, and money used to pay the expenses of these organizers and propagandists will be money well spent.

Another law which has proved of benefit to the farmers of the state is the law regulating the state's commission merchants. The operation of the law has demonstrated that the protection which it gives to the farmer should be increased. I shall call the legislature's attention to the fact that there is room for improvement in the present law and shall suggest that all commission merchants be required to keep records of shipments and buyers, so that every farmer may know where his products go. With such records made mandatory, the farmer will be protected against imposition and the state authorities will be better able to detect and prevent violations of the law.

There are other problems confronting the farmers of New York and I want them to know that in each one they will find me sincerely anxious to do justice to the farmers and farms of this state.

It is time that New York awoke to the fact that its agricultural development is the proper care of every citizen whether he works upon the soil or in New York's thriving cities.

New York prides itself, and justly, on its magnificent industries and its tremendous industrial enterprises, but it has reason for equal pride in its splendid farms. Few people realize that just as New York leads the rest of the nation in commerce and industry, it equally deserves the title of "Empire State" for its agriculture.

No state in the union produces a wider variety of agricultural products. Although New York stands seventeenth in the area of cultivated lands it is fifth in the value of its agricultural products. One county in New York produces more grapes than any state in the union with the exception of California. Six counties in New York produce more apples than any state west of the Missouri river.

New York leads all other states in the production of vegetables,

fruits and dairy products. To establish this record despite the fact that New York's farms are competing with the attraction of the greatest city of the world, is a thing of which New York may well be proud.

New York's farmers have reason to view the work of their hands with satisfaction. They have preferred the independence of the open to the turmoil of the city. While others turned the wheels of industry, they have faced the burning suns of July and the snows of December, that those engaged in other occupations might be fed. And, in a state which has focused its attention upon industrial achievement, they have maintained the agricultural standing of New York, in a manner well worthy of its splendid resources. New York would fail in appreciation, it would be lacking in justice and deficient in foresight if it failed to give to the farmers of New York the consideration to which by thrift, by intelligence and by integrity they are entitled.

COMMISSIONER HUSON: I know you are all delighted with the address by the Governor. An engagement which it is necessary for him to fill requires that he should leave at this time and he sincerely regrets that he is unable to be here during the remainder of this session.

I now have the honor of presenting to you Chancellor James R. Day, of Syracuse University.

ADDRESS

CHANCELLOR JAMES R. DAY

I esteem myself highly honored by your invitation to come here this evening and address you. Upon arriving in the city just before the hour set for your gathering a few sentences came to me which suggest that possibly there might, after all, be some little mistake about it. Commissioner Huson possibly did not understand the limitations of his commission in this particular, and we have gotten mixed up; and I have gotten into the wrong place, or you had invited the wrong man, because I am one of those despised sectarians that ought to be with the ministers, the priests and the rabbis, and ought not to presume upon any such large liberties as these.

I had to come here to Albany to learn that I am a sectarian; but then we learn a great many things in Albany that we do not know in Syracuse. The supreme court of one of the great western states had before it the other day the question, "What is a sectarian university?" And the court unanimously decided that although a university might be founded by a religious denomination and be under its supervision, if it admitted students from all sects, and no sects, and from everywhere, it was not sectarian. And upon that decision we at Syracuse are not sectarian and I belong here as much as you do.

We have Jews and Gentiles, Catholics and Protestants, Moham-medans and Shintos. We have people from all over this country and from twenty different nations of the earth, and there is no doctrine of the church which founded that institution taught there; there is no ceremonial of the church practiced; there is the utmost liberty and freedom to every student to come there and worship God according to his own conscience and after his own fashion, anywhere, in any church in that city.

You were warned against giving money to a sectarian institution. Syracuse University has paid into the treasury of the state of New York hundreds of thousands of dollars in the forty odd years of its history and never received an appropriation from this legislature, and does not ask for one. Therefore, you are not very much in peril at the point of an appropriation of moneys to a sectarian institution. First, because we are not sectarian; and second, because we do not want your money.

The appropriation made for the New York State College of Forestry was not to Syracuse University. Syracuse University is contributing to the great state of New York, into which it has paid its hundreds of thousands in taxes, an amount of property and an amount of privilege to your New York State College of Forestry that you could not procure for less than four millions of dollars. It is giving you its museums; it is giving you its laboratories; it is giving you its libraries; it is giving you its superb athletic stadium and gymnasium; it is giving you the whole range of its great properties and saying to you, "Take it and welcome."

As to the fact that the State College of Forestry is at Syracuse University — how did it happen? Why was it done? In the

first place I can not see the logic in the attack upon the College of Forestry now that it is an established fact. Why shoot at game after it has gone by and is out of sight? Possibly to scare the game. Some game does not scare. Why bail up the waters that have gone over the dam? Why not let them flow on mightily to the sea?

I remember looking around over this state before I cherished the thought of the State College of Forestry, to see whether the field was clear. I looked into all the college catalogues. There was not a line on forestry instruction in any catalogue of this state, in any college, after the year 1903 up to about 1911. There was not a solitary syllable in the catalogue of any college on the subject of forestry.

I therefore thought the field was open and clear; but to make doubly sure, I wrote to my friend Dr. Gunnison, of St. Lawrence University, up on the edge of the Adirondacks, and asked if he was thinking of establishing a college of forestry. He said "No." Then I said, "We will have it; that is, we will have it established at Syracuse." And the legislature twice passed unanimously through both houses the bill establishing the State College of Forestry at Syracuse University, not of Syracuse University. The first governor vetoed the bill because seven millions of people were not able to pay \$50,000 to have such a school. The next governor signed the bill and it became an established fact in law. The next legislature, but one, passed the bill to erect a building for this State College of Forestry, and the land has been deeded; the deed has been received and recorded, and the land is now the property of the state of New York. The bids for the erection of the building will be opened in my office next Tuesday afternoon at two o'clock. Not a man appeared before either legislatures to oppose the State College of Forestry.

We have the impression up at Syracuse that the State College of Forestry is established; and what is the use of making a fuss about it? It does not irritate me.

Well, what do I know about agriculture? There is scarcely a man on earth who knows anything, as the Governor intimated, who does not profess to know about agriculture. And I want the confidence of this great state educationally. I want the farmers' sons

and daughters, such as we can get nowhere else, to come from the rural homes of this state. I like the kind of stuff of which they are made — but really I do have some claim to farm knowledge. I was started as a lumberman's boy, the same as our great dean of forestry; and before my teens I was put upon the farm, and I know about the old kind of farming. That is not the kind you want today. My father was a good farmer of that time; but you do not want those old times to come back. In that particular, many of the particulars of the old times, it is just as well to let them drift by. But still I have some lively remembrances of farming in those days.

I was later transported to one of the great ranches of the farthest west on this continent, and rode cayuse ponies herding cattle, when the ponies did not ride me. I know something about some of those activities; and that is what has put me in such lively sympathy with the immortal Teddy! We were fellow cowboys!

Then I came back and went on the farm again for a little while, then went to the preparatory school, then went to the college; but went back to the farm in vacations to pitch hay and help my brother. I had a record for pitching hay. Six feet three inches is a mighty good leverage at the end of a hay fork. One hundred tons of hay to get in is fine preparation with which to go back to college and get ready for your work. I did not do anything in athletic sports. I played base ball once. I hit the ball once, and the ball hit me once; that ended the chapter. Only I always felt gratified that they never found the ball that I hit.

So I have some sympathetic relation to the great question of farming and the farm home. When Commissioner Huson called me up over the phone and asked me if I would come here and say something, I said, "Why, yes, I will." I hung up the phone and said, "That is easy. I'm awfully busy; I have been receiving invitations to banquets and such things. This is easy though; I can go down and talk to a gathering of people about farming, of course, if I can talk about anything." And I felt so perfectly contented about it that I kept right on about my work. I woke up to the thought yesterday morning that I was due here tonight, and I looked around for some of that easy material that I was going to get together; and, bless you, I could not find a thing! The more

I thought about it the more difficult it became; the less there was for me to say, and the less I knew; and I said, "What in the world am I going to do?"

I thought it was easy to get a few things together and talk to farm people about farm things; and I just discovered that to make a speech on farming was about the most difficult thing that I had ever tackled. I could do much better preparing a speech on corporations; I could do much better talking about the wide business interests of the country; but to talk about farming — what was I going to say that everyone had not said? That was the trouble.

Now, what am I going to say that is worth a man's hearing? I assure you that it is exceedingly puzzling. It is the most common subject in all the world; everywhere; to every kind of people; every kind of soil; in every kind of climate; under every condition. We find agriculture everywhere so common that the average man seems to think that one does not need any professional instruction, any school preparation, to take hold of this great question of agriculture. You just dig a hole, put in a potato, and raise a potato blossom. That is all there is to agriculture. Anyone can do that.

I suppose there was a time when it looked very much like that; everyone could do that. And the climate in those days seemed to be more congenial; not so much drought; insects had not bred and multiplied so enormously; the soil was new and could be tilled with crude instruments and rude methods; and old Mother Earth would yield bounteously if you kept the weeds down and let her do the rest. But under these new conditions, in this tremendous age, it is quite a different proposition. It is something to think about; something to study and to investigate; it is something that calls for the scholar; something that calls for science in many of its forms; it is something that addresses itself to research and study, most earnestly and most seriously.

To carry forward forms of agriculture today is a business like the business of trade and commerce, of manufactures, of the arts and the sciences. It has its difficulties. It is classed in the upper realm of the great things which men are planning and thinking in the greatest age of the world's history. You have lifted it into a dignity and into a majesty that appeals to the best there is in a man.

There was a time when it was all within a little realm and the farmer controlled things. But now it is farming that fixes the price of stocks and determines the size of dividends. It is something that has to be computed in the tides of the commerce of the whole world. Now you go from the farm down to the ship dock and see the great steamship loading with wheat and corn and many of the products of the farm, to sail away across the distant seas to the uttermost parts of the earth and return laden with purchase price in goods. And you find that men are setting a price on corn before it is raised. You find that men are selling wheat before it is threshed. You find that this whole question of agriculture is one that stands related to the amount of trade that should be carried on in your great cities, and has to do vitally with those railways which we have so unfortunately and unwisely oppressed and depressed, but for which we now, as the president has been telling us within the last few hours, are about to have better things. People who have anything to do with farmers should tell them that there is something besides a row of corn; something besides a pig sty; and something besides a herd of cows, noble as they may be. They should understand that the things which they are doing are as dignified and as closely related to the government itself, and to the great interests of the people commercially, as the things that are being discussed in the counting rooms of the business houses, or by the directors in the banks, or by Congress; and that today farming has come to be placed upon an equality with the things that are most vitally related to the interests of the country.

What would you people do in the cities without farmers? Talk about farmers! Reuben with his trousers in his boot tops; Reuben with his goatee; Reuben with his long hair and bent shoulders. Do you think that caricature is true? Go into the country! The big men are in the country! You have a few scattered in the city, that came from the country. Come out into the country and see men. See women who are rearing their girls for beautiful matrons of the age that is to come.

I shall not detain you to describe the conditions in the country life today. For me they are very attractive; they are ideal. I just simply like to think of two or three of them. I like to think that a great government has awakened and given us the rural free

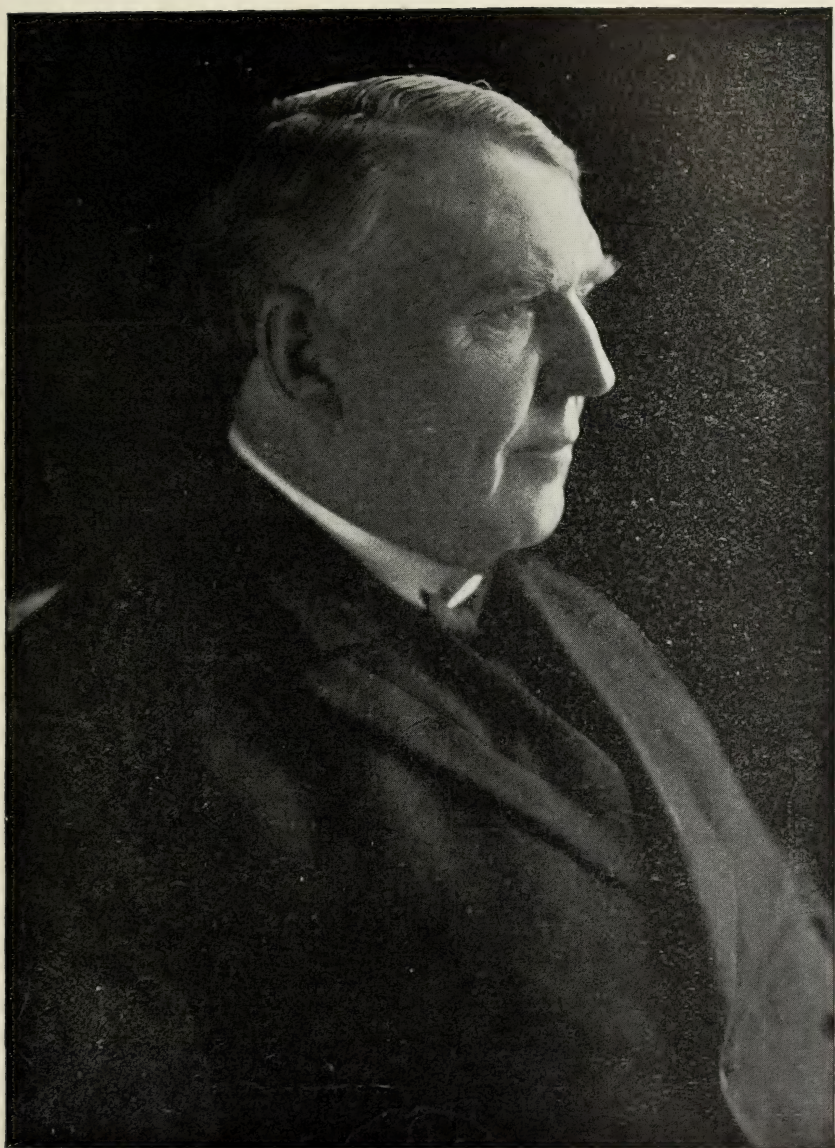


FIG. 254.— CHANCELLOR JAMES R. DAY, SYRACUSE UNIVERSITY.

delivery through the country where the farmer can get his letters and magazines delivered as promptly as you and I get them on the streets and avenues on which we live. A great element of enjoyment for the boys and girls. A great government has given us the parcels post by which the farmer may send butter, cheese, eggs, and all products of the farms to the city folk who used to have to eat cold storage products.

Now we get them fresh and sweet. Eggs laid yesterday; the mutton lately killed and dressed, not trundled from away across the continent; butter before it is rancid; cheese before it walks alone; all of these things from the country just fresh, new and sweet. Bless the man who made the parcels post. I do not care whether it was made by a Republican or a Democrat.

Private capital now runs a trolley car in this direction, and the other direction, and to every point of the compass. I have my eye on a farm that I want to buy when I retire from the university, because a trolley car runs so near that I can come and go without any trouble. Possibly there are farms that trolley cars do not reach, and if a farm is away out beyond the trolley line, then Mr. Ford comes along.

Telegraph lines; telephone lines; and then your inventor invents all kinds of machinery for you. You have your cream separator; your milk clarifier; you have your pasteurizer; your testing machine by Mr. Babcock, given free to the world, by which you may find out how much butterfat you have in your milk; and it does not take you very long to learn something about bacteria and destroy them. Then you are testing your cow with tuberculin and protecting your herd from an insidious and destructive disease.

You have a beautiful house to live in, planned by an architect, arranged delightfully with reference to sanitation. You have learned how to keep your windows opened and screened against insects, and you sleep the sleep of the just. You have trees around your home, full leaved in the summer time, and you look out into the world by those long rays of light, the green rays, that the Lord colored the grass with; or the violet rays, the short ones, with which he painted the flowers. And you breathe air that no one else has breathed. That is a great thing — to breathe air that no

one else has breathed! Now we have all that is delightful in the home. But I will not detain you. I can not stop to put this thing in the rhetorical and poetical fashion I should like to shape it for you.

I may simply say this — I believe that there is no greater interest of the American people to which a great nation and great states of the nation, and especially the greatest state of the states, should address themselves, than this question of the farm life, the home life of the millions of people, until they are requited for their toil by just compensation for the things which they raise, and are so contented that there will be universally that supreme contentment which will hold to the country the making of the manhood and womanhood that was so mighty in laying the foundations of the early republic.

I should like to see the country back to that kind of business. It is important to raise Holstein cows and Jersey cows and Berkshire pigs and Hampshire sheep, but I want boys raised. I want girls raised. And I want the farmer so requited that the boy who is only a country boy, a farmer boy, will feel, "I am the most fortunate boy that walks this continent; and I am the happiest boy in America."

Under such conditions the boy will be so well off that he will be contented and happy. Conditions of the country life should be to be away up on that level. Give the boys home life! There is something besides fields and forests; there is something besides barns and buildings. There is a home life; milking at 4:30 in the afternoon and supper at 6; the evening with the newspapers or the magazines, and with music and entertainment. Music and social life, and father, mother, son and daughter, and the happiest region in all the world, the home life on the farm.

I know a graduate of Syracuse University who looks like an old farmer. He has a farm. He has three or four boys and he began to take them into partnership when they were twelve or fourteen years old, and gave them a profit. He did not give them a calf which was sold afterwards to the butcher. He did not give them a pig which he sold and put the money in his own pocket, but gave them an actual profit out of the business. You should see those boys! They come back to college to get their

father's training, but stay on the farm, and are going to stay on the farm, and are adding to their acres. You know that man, some of you. The commissioner knows him. Grant Hitchings is a great orchardist. This man went a little way out of Syracuse and took up land that many of you would not have thought of bothering with, orchards and fields neglected and not at all attractive, and he made "The great orchards of Grant Hitchings."

That is a possibility, understand, and this great government of ours ought to address itself to that kind of work. It is work that pays immensely. But you say, "That only applies to the rich man; only a rich man can be that kind of a farmer." I am not talking about the rich man. I am talking about the poor man; the kind of a farmer I am going to be when I get through at the university. That poor man may have to take poor land in need of tilling, draining, fertilizing, all that sort of thing, and bye and bye the poor land comes to be the fertile and productive land. He has his land on the other side of the fence from the rich man. He works it just the same. Henry Ward Beecher had a farm and he said that such farmers as he were the fools that made the farmers of the country wise. Get wisdom from the rich man! That can be done easily enough today.

Buy a registered cow, not a scrub. I have a friend who gave up work in a grocery store and made his home in the suburbs. He said to his wife one day, "I am going to buy a cow." Well, what do you think he did? Did he go and buy one for \$33, with three teats, because he was a grocer's clerk and had retired? No; he went to a sales stable in the city of Syracuse where there were some registered Holsteins put on sale and bought a cow and paid \$450 for her, and drove her home. His wife said, "You look like Ogdensburg." But the next day he was offered \$100 for his bargain, and then he knew that he had bought wisely. He showed me the records of some calves, and he sold one heifer for \$2,500 and another one for \$3,000, and so he went on until I told him, "You do not look to me like Ogdensburg; you look like Sing Sing. You are not insane — you are a robber!" Now he has a farm of 302 acres and 125 head of registered Holstein cattle.

He went through the university barn the other day and said, "I will give you \$500 for that one and \$2,500 for those three."

Why did he say that? Because he bought them for us two years before and paid \$200 a piece for them, and knew their value. I said to him at that time, "We have to have a herd for this agricultural college and I am going to pay only \$200 for them, and you have got to go and procure them. So he went out into back towns and came back and said, "I have them; paid \$212 apiece." I said, "What do you want?" He replied, "I want that calf." I said, "Yes, that calf may be worth a thousand dollars."

That is the way you can do those things. Get a registered cow and her calf will be worth five times as much as a scrub. Get a registered pig. We are having requests come from Indiana, Rhode Island, New York, New England about registered Berkshires. Get some registered sheep. You can sell their lambs for ten times the price. Get a Percheron or Belgian mare to do the work and raise some colts, some great colts. If you have a big farm, have one pair of big mules. They are the gentlest creatures in all the world — if you are gentle with them.

Work along such lines as these; the great, new lines. What else would you tell them? Tell them this: They have a great bulk of agricultural information at the city of Albany, with a great commissioner and his corps, where questions will be answered with the greatest possible courtesy and the greatest possible delight. They will be delighted to answer your questions. For a cent invested in a postal card you can get your little pamphlet from Washington; your circular from this state also. And for five cents you can buy a paper to tell you a lot of things. The information is voluminous and you can get it without any trouble anywhere.

I would have the great state of New York do some of the practical things that the Governor was telling us about here tonight. I wish the state would buy up a lot of forsaken, waste farms. I wish it would turn loose the thirty or forty thousand acres of land that has gotten tied up now by an unfortunate revision of the constitution. I wish it would go and say to these people who are crowding into the cities and breathing and rebreathing air, "Come out, you look pale, you need to live in the country, not the sweat shops; you do not belong there; you ought to be out in the great country." I do not believe in the "back to the land" cries with-

out any knowledge of the work you are going to attempt to do. That is misleading and dangerous. I think we ought to have more agricultural schools. There ought to be a hundred agricultural schools in the Empire State. There should be the greatest facilities and liberty given to everybody to start agricultural schools; one hundred, two hundred, five hundred of them. You are nine millions of people — you will be fifteen millions, twenty millions of people.

I saw the Island of Java where the original Paradise was; where the Garden of Eden was planted. A little island the size of New York State supporting twenty-nine millions of people; all on that one island, and not half of it cultivated. Then Japan with only one-twelfth of the islands arable land. And they raised a lot of little brown soldiers that drove those big Russians from Manchuria and over the steppes of Russia with all possible speed, just by cultivating the little land they could get hold of.

Ralph Waldo Emerson said that England was cultivated with a lead pencil. Java is cultivated with the lead pencil; Japan is cultivated with the lead pencil. We want to get out our lead pencils in the great state of New York and get them into the hands of those immigrants that come in here and crowd into the great cities like New York, and get them out into the great country and show them what it is to live. Teach them with teachers; with lecturers; with pamphlets; with agricultural papers; with schools; with experimental farms; teach them in a thousand ways how it is that they can sustain life by their own endeavor by farming out the land; and bye and bye the country roads will be populous with the country people with their red blood coursing through their veins. The red schoolhouses will bloom again on the hill tops and children will be dancing along the country roads over the valleys and up those ascending heights to the old schoolhouses.

Stalwart citizens, the statesmen and philosophers of the plow, will come again to do the country's great thinking. The farms will retain their lawful toll of sons and daughters to sustain the country life, and the homesteads will open out their doors through which will come sturdy, rugged, pure-blooded, high thinking lawyers, doctors, legislators and merchants, teachers and preachers.

And over a reclaimed, a regenerated and redeemed country life the morning stars shall clap their hands as in the dawn of the new creation.

COMMISSIONER HUSON: Mr. Sisson, your retiring president, will now take charge of the meeting.

MR. SISSON: There is nothing that your retiring president has to do except to thank one and all of our members and friends who have so valiantly aided him and aided the entire society in the work we have attempted to carry on during the past two years. We have arrived at the close of our program —

MR. SCHRIVER: I think, Mr. President, we ought to record the appreciation of the society for the address of the Governor of the state, and I move that we here and now express our appreciation of the Governor's presence and most illuminating address in the interest of the agriculture of the state.

Motion carried.

MR. SCHRIVER: I think also that it is due the Chancellor of Syracuse that we make a recognition of his presence and address. I move that we do so recognize him.

Motion carried.

MR. SISSON: I now declare this convention adjourned until the legal time for its convening one year hence. I thank you all.

LIFE MEMBERS

A

Abell, Flavel A., Fayetteville.
 Acker, Milo M., Hornell.
 Adee, Philip H., 45 Pine St., New York.
 Akin, Elwood S., Auburn, R. D.
 Aldridge, A. E., 118 W. Railroad St., Syracuse.
 Alexander, W. A., Union Springs.
 Allen, E. M., 319 So. Crouse St., Syracuse.
 Allen, Frederick H., Pelham Manor.
 Allen, George W. H., Cazenovia.
 Allen, Gordon W., Auburn.
 Allen, I. W., East Syracuse.
 Allen, William J., Heuvelton.
 Allis, Clark, Medina.
 Amos, Jacob, Syracuse.
 Anderson, John B., Geneva.
 Andrews, Charles D., Camillus, R. D. 1.
 *Andrews, Frank H., 23 Main St., Johnstown.
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STATE OF NEW YORK
DEPARTMENT OF AGRICULTURE

CALVIN J. HUSON, Commissioner

Bulletin 61

Peach Yellows

AND

Little Peach

Prepared by
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INTRODUCTION

The object of this bulletin is to give to the peach growers of the State of New York as much information as is possible relative to the contagious diseases of the peach known, for the want of better names, as Yellows and Little Peach.

The cause of the diseases is obscure and until pathologists learn their origin we must depend upon the only known method of preventing the spread of the disorders wherever they appear.

Our work in this state for the control of the diseases has been effective and similar methods in other states confirm the fact that peach growers to continue must recognize the essential fact, that if either disease appears in an orchard, the affected trees must at once be cut out and destroyed. Growers who have neglected this have gone out of the business of peach growing.

A further reason for issuing this bulletin is to give in illustrated form the characteristics of these two diseases. Mr. L. F. Strickland, an inspector of this Department, has had excellent opportunity to study the subject in the great peach belt of western New York for many years. He has become expert in the study and detection of the diseases in all stages, and some of the information in these pages is derived from his investigations.

Particular attention is called to the colored plates in this bulletin. The originals of these plates were made by Miss F. C. Atwood from studies in the orchards under the direction of Mr. Strickland. They embrace the first, second, third and fourth year developments of each disease in several different types of varieties. The illustrations are not conventionalized in any way but are an exact reproduction of the color, shape and other characteristics of the diseases under consideration. Nothing of this kind has been done in this country attempting to portray the

peach diseases on so extensive a scale, and it is hoped that the illustrations will be of use to peach growers for many years to come.

Attention is also called to the significant result shown in the work suggested and started by Mr. B. D. Van Buren of this Bureau in 1902. It will be noticed that where all diseased trees were cut out for a series of years, the percentage of loss dropped to almost an insignificant number in the last years of the experiment.

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ALBANY, N. Y., *June, 1914.*

PEACH GROWING IN NEW YORK STATE

Peach growing in the State of New York has been very encouraging the past few years, and, notwithstanding the fact that winter injury to the blossom buds has cut the prospects of a good crop for 1914, there is ground for the belief that the industry is on a substantial basis, especially in certain belts of the state notably along the great lakes, the finger lakes and in the Hudson Valley.

The federal census for the year 1910 reports the total number of peach and nectarine* trees in the United States at 94,506,657 of bearing age and 42,266,243 not of bearing age.

Thirty-five million four hundred and seventy thousand two hundred and seventy-six bushels of fruit produced, were in 1909 valued at \$28,781,078.

The same year this state had 2,457,187 trees of bearing age and 2,216,907 not of bearing age.

Production, 1,736,483 bushels, valued at \$2,014,088.

Among the fifteen states producing over 1,000,000 bushels of peaches, New York ranks third; fourteenth in number of bearing age trees, sixth in number of trees not of bearing age and third in cash value of the crop.

It should be noticed that the peach is of tropical origin and that therefore the states to the south of New York would be expected to produce superior results.

Peach growing, particularly in California, has assumed great specialized and commercial importance. Only 21,637 farms reported bearing age trees to the number of 7,829,011 with crop value of \$4,573,775, New York had 25,926 farms reporting 2,457,187 bearing trees with crop value of over \$2,000,000. Less than one-third the number of trees in New York produced nearly one-half the value of the California crop.

Georgia had 74,643 farms reporting 10,609,119 bearing age trees which produced \$2,182,613.

Texas with 108,959 farms had 9,737,827 trees with production valued at \$703,649.

* Nectarines are included with peaches in the federal statistics, because of the similarity of the fruits, but there are no commercial orchards of nectarines in New York State.

A peach crop is subject perhaps to more causes of failure than other orchard fruits, yet the chances of success seem from statistics to place New York State in a very favorable light. Extensive increase of commercial plantings should only be made in the proven peach belts. If the right locations are planted with suitable varieties and the most modern orchard methods practiced, the soil, climatic and market conditions promise good returns to the progressive peach growers in New York State.



Peach orchard in Western New York, twenty-three years old and very productive.

PEACH YELLOWS AND LITTLE PEACH

The peach is subject to the attack of many insects and fungous diseases. The life histories of the insects have been written out and the fungi are named because known. Most insects can be controlled by spraying or otherwise, and the larger part of the plant diseases are prevented by a timely use of sulphur or copper compounds.

There are, however, two diseases, the yellows and little peach, to which the orchard peach trees are subject in the northern and eastern portions of the United States.

The names commonly given to these diseases are partly descriptive and not wholly satisfactory. Their origin is unknown and it is not certain that both diseases come from the same cause.

There is little evidence that the two diseases appear in the same tree at the same time, though it is common to find both disorders in the same orchard. There is no evidence that one disease produces or spreads the other, the yellows and little peach being apparently entirely distinct and separate diseases. Future discovery may determine these points.

There is much speculation as to the cause of peach yellows and little peach, among which are opinions of growers briefly stated as follows: Too wet, too dry, winter injury, lack of fertility, excess of some fertilizing commodity. Others believe that the diseases may be caused by fungi, and still others that they are of a physiological nature, caused by an increase of one of the active agents of the cell life, called enzymes, or is caused by bacteria which are spread in similar manner to the bacteria of pear blight.

The fact that color is a predominant character in both diseases leads some to think that the causes will be found to be physiological disturbances.

While the causes of the diseases have not been determined, there are, however, many facts on which there is unanimity of opinion.

The diseases are contagious and spread rapidly from a center of infection.

Pits from a diseased tree, if they grow, will transmit the disease.

Buds from diseased trees inserted in healthy stock produce disease in the following season's growth.

There are indications that the diseases enter the trees by inoculation through cross-pollination by wind, insects or otherwise.

No diseased trees have ever been cured so far as known either by spraying, watering, mulching or fertilizing, notwithstanding nearly everything along these lines has been tried.

No trees have been saved by cutting out an affected portion as has been so effective in the case of fire blight of pears, apples and quinces.

A healthy tree may be planted in the same place from which an old tree has died from disease without danger of loss.

Plums, apricots, almonds and nectarines occasionally have symptoms of yellows but not to such a serious extent as peaches.

The cause of these diseases and remedies therefor should be sought by pathologists who can bring to their aid every facility of their science and have time enough to experiment over a series of years. One suggestion along this line is to ascertain if some poison like hydrocyanic acid may not be a controlling factor. Prussic acid has long been known and associated with the peach. Professor Galloway says, "The meat of peach pits contains a substance known as amygdalin. When this substance is acted upon by an enzyme known as emulsin, which also occurs in the meat of the peach pit, the amygdalin is split up and hydrocyanic acid and benzaldehyde result. Heating of the product destroys the power of the enzyme to act, and as a result, no splitting up of amygdalin takes place. This substance is also supposed to occur in the leaves of the peach tree but not in the fruit itself."

There are many other lines to follow and it is hoped that good results may be secured by some one within a few years.

Dean Bailey once said in effect that to the commercial orchardist it mattered little what the cause of yellows might be, the remedy may always remain the same—the digging out and destruction of the diseased trees.

The cause of these two diseases has been a subject of investigation for many years and up to 1914 is as hidden as ever; in fact but little if any real progress has been made.

Since peach growing has assumed commercial importance, large acres embracing extensive orchards have been developed and much success has resulted, but the history of the industry in this and other states is full of records of loss from disease.

In many places all the peach orchards in a country or a state began to die and disappear soon after the trees reached good bearing size. The results to the trees were the same in orchards having all the essential care as those wholly neglected. Here and there through the peach belt, growers were found who kept in the business with good results but they were known to cut out and destroy promptly the very first appearance of the disease in their orchards.

Peach growing is rapidly coming back even where a few years ago ruin was evident, but the fine annual crops and the attractive prices secured for fruit should not encourage large increase in planting unless every peach grower learns to detect the very first symptoms of peach yellows and little peach, and will further agree with himself and all others to destroy the affected trees on sight.

Neglect or even delay of this most important course will surely be followed by the untold losses above referred to. On the other hand, there is the definite record of good results obtained from a systematic elimination of diseased trees as shown by the work of the Department under section 304 of the Agricultural Law.

The work for the control of yellows and little peach began in the year 1902 in the peach belt of Niagara county, and has been carefully followed up each year up to and including 1913. At the beginning it was believed that either of the two diseases could be controlled if all diseased trees in the territory were systematically marked at the right time and destroyed.

When this work was first begun, an area comprising forty large commercial peach orchards was carefully inspected and the diseased trees were marked and destroyed.

No attempt has been made to record yellows and little peach as separate diseases and we have no complete record of the number of infected trees of each disease, but the following report, covering a period of twelve years, shows the number of both together.

Year	Number of orchards	Number of trees	Diseased trees	Percentage diseased
1902	40	62,700	2,633	4.2
1903	40	64,700	2,005	3.1
1904	50	90,288	829	.90
1905	50	133,860	803	.77
1906	60	129,327	901	.69
1907	60	115,100	730	.65
1908	466	418,529	11,297	2.70
1909	501	497,374	9,247	1.86
1910	440	506,590	4,768	.94
1911	473	564,408	8,510	1.51
1912	514	715,587	7,373	1.03
1913	541	687,082	6,031	1.00

Attention is called to the decrease in percentage of diseased trees found each succeeding year from 1902 to 1907 inclusive. In 1908 the area containing orchards inspected for yellows and little peach was increased about fourfold by annexing adjoining territory. The number of orchards was increased from 60 to 460 and the number of trees from 115,100 to 418,529. In the area annexed were many orchards badly diseased and in some instances about the total number of trees inspected was found diseased and destroyed. This increased the percentage of diseased trees in a marked degree for the season 1908. From 1908 to 1911 the territory remained practically the same except that in the year 1910 a small part of the area annexed in 1908 was dropped. In 1909 and 1910 there is shown a marked decrease in the percentage of diseased trees notwithstanding the orchards in the entire territory were given two thorough inspections practically doubling the amount of work which was considered necessary to get the best results.

During the years 1911, 1912 and 1913 about one hundred more orchards were added to the territory covered. Some of the newly added orchards were badly diseased which accounts for the increase in the percentage of diseased trees in 1911 and the little change in the percentage during 1912 and 1913.

In some of the orchards first inspected in 1902, less than one

diseased tree per thousand was found during the inspection of 1910. It is estimated that about one-quarter of the diseased trees above referred to were affected with little peach and the remaining three-fourths with yellows.

The destructive effect of yellows where no attention has been given to the prompt removal of diseased trees was rapidly shown during the period of inspection.

Growers who are constantly in their orchards soon become, in the course of a few seasons, expert in detecting the diseases; not all, however, acquire the necessary skill. The difficulty of deciding just what to do will soon pass if careful attention is given to all aspects of the problem, and the following suggestions should prove useful.

The yellows and little peach diseases can be quite clearly shown in four years. The first year stage appears in a branch or small portion of a single tree. The second year a larger portion of the tree is involved. The third year disease is very conspicuous and the fourth year the trees are dead or nearly so.

Some difficulty will be experienced by the investigator beginning observation to detect peach diseases. He may think he has found a tree with yellows when the cause of the yellows' appearance may arise from winter injury or other damage to the roots, from cold or excessive wet land, or from borers or other injury.

The industry of peach growing is increasing rapidly in some of the counties of the peach belt. Orleans county is in the advance and had a large crop in 1913 with a greater number of trees bearing than before.

A careful inspection of 325 orchards embracing 261,021 trees was made. Two hundred and twenty-six trees were found diseased with little peach and 2,608 with yellows, or 1.08 per cent.

Of the trees inspected in the Niagara belt in 1912, 2,404 were affected by little peach and 4,969 by yellows.

In 1913, 5,623 had little peach and 1,408 yellows.

The diseases should be sought for and the whole diseased tree at once cut and burned.

The plates accompanying this have been prepared to illustrate the normal and diseased appearance of peach foliage in the season when most conspicuous, and reference is made to descriptions of each plate.

SERIES I

YELLOW S

The symptoms of this disease begin to appear late in the month of July in the Western New York peach belt and continue during August and until about September 10, at which time most of the varieties have ripened.

Some difficulty will be encountered at first by the inexperienced observer because of the apparent intermingling of many characteristics. But as one becomes familiar with the effects of scale, peach tree borers, shot-hole borers, shot-hole fungi, curl leaf, lack of cultivation, late cultivation and frost injury, particularly the latter, he can usually identify the varying characters of the disease.

FOLIAGE CHARACTERISTICS

VARIETY, EARLY CRAWFORD

Yellows may appear in foliage, fruit and twig. To train the observation, the foliage characters of yellows will be taken up first. Generally speaking, these characters are the ones which attract the attention first to a diseased tree, and further examination will reveal characters on some specimen of fruit.* Series I, Plates No. 1, 2, 3, 4, 5, and 6 bring out the prominent foliage characters of the various stages of the disease from year to year in early Crawford.

Plates No. 1 and 3 are examples of natural foliage, one with fruit and the other without. Note the deep green color of the leaves, there being very little difference in color or vigor of the two.

Plate No. 2 represents the effect of the disease on the foliage and fruit, the first year the disease appears in a tree. The specimen was taken from the same tree as the specimen in Plate No. 1, one large limb of the tree having come down with yellows while the balance of the tree was apparently normal. Note the distinct tinge of yellow in the leaves of the affected branch. Plate

* For the convenience of comparison, the plates are shown in series. In general the series take up the study of the diseases as they affect individual varieties.

The descriptions will detail the characters appearing in the varieties in the series and field, showing the differences between the two common types of foliage illustrated in Plate No. 19 and Series VI, VII, VIII and IX.

No. 4 is a branch of the same diseased limb. This branch had no fruit but one can see the yellow shade, the sign of disorder.

Plate No. 5 is a branch from another tree of the same variety. The disease appeared in the limb the previous summer, so the twig from the limb represents the second year of the disease. Observe the deeper shade of yellow in all the leaves. Compare it with the natural foliage of Plate No. 3. The leaves are always less vigorous and turgid, especially during the latter part of the second season. They sometimes roll slightly. However, the rolling is very often caused by attacks of shot-hole fungi along the margins of the leaves. The yellow shade appears whether the leaves roll or not.

In Plate No. 6 the third year of the disease is shown. Note the lack of foliage, and that the leaves are about the same shade as those of the second year foliage in Plate No. 5.

By the fourth year of the disease many small twigs of the limbs have died. The foliage is very scarce and death usually comes at the close of the growing season.

A TWIG CHARACTERISTIC

During the third and fourth years of the disease in a limb, wire-like shoots with narrow leaves often appear. These are well illustrated in Plate No. 6. These shoots have the habit of bursting from the bark on the lower side of the limb and of growing up vertically very close to the main branch or limb. When they develop on a limb, the wire-like shoots seldom grow more than six inches long. If they grow from the body of a badly diseased tree or from a diseased stump, they tend to grow in a broom-shaped clump about twelve or fourteen inches long. The little wire-like shoots most always appear during the first or second summer's growth of the young tree which has been propagated from a diseased bud or stock. Wire-like shoots with narrow leaves may appear during any of the four years of the disease. However, they are more often found during the third and fourth years.

In Plate No. 7, Fig. (a) is another example of how peculiarly these shoots grow out from the under side of a limb. This is natural size. Note how narrow the leaves are. They never grow

larger, and the wire-like shoots seldom live through the winter. Fig. (b) is a part of a clump of wire-like shoots taken from a diseased stump.

SERIES II

FOLIAGE CHARACTERISTICS

VARIETY, BLACK CRAWFORD

Series II, Plates No. 8, 9, and 10 is a series comprising the natural and diseased characters in the variety, Black Crawford. The plates were made at the same period of maturity, about a week prior to the time this variety was picked. Note the blue green color of the healthy foliage of Plate No. 8.

Compare Plate No. 9 with Plate No. 8. Plate No. 9 is a branch of a limb affected with the first year of yellows. The characteristic yellow shade is very noticeable in this variety. Notice that the tip leaves are still normal. These leaves will show the yellow tinge before the fruit is picked.

Plate No. 10 is the second year of the disease in the variety. Note that all the foliage is heavily shaded with yellow, and that it is less vigorous than the natural or even the branch affected by the first year of the disease.

Very often the foliage character is the first which attracts the attention to a diseased tree of this variety, because the fruit character is generally difficult to observe unless the fruit is close at hand.

SERIES III

VARIETY, DEWEY

Series III includes Plates No. 11, 12 and 13 as the disease appears in the Dewey variety. In Plate No. 11, the natural foliage shows the leaf habits of the variety, having rather narrow leaves of a slightly blue green color. Plate No. 12 shows first year yellows in the Dewey with the same characteristic shade of the corresponding year in Series I, with the exception that the tip leaves have not yet changed to the yellow shade. Before the first season is ended, however, the yellow tinge will appear in all the foliage. Plate No. 13 illustrating the second year of the disease again verifies the description in the second year of the other two series.

SERIES IV

VARIETY, ELBERTA

The foliage characters of yellows do not vary greatly in the varieties of peaches, as has been illustrated in Series I, II and III. Therefore, it does not seem necessary to show other than the natural and first year characters in this variety. These are illustrated in Plates No. 14 and 15 of Series IV. The variety naturally has extremely long, wide, rank, deep green leaves. Notice the variation in type between the normal Crawford foliage and normal Elberta foliage of Plates No. 3 and 14, respectively.

In Plate No. 15 the effect of the first year of yellows is noted. The terminal foliage is normal at first, but it soon takes the yellow shade.

SERIES V

FRUIT CHARACTERS

PREMATURES AND NATURALS

The predominant character of yellows is the prematuring of the fruit. The fruit so ripening possesses certain characters which distinguish the specimens from normally ripened fruit. The skin becomes mottled or dappled with quite regular red blotches as will be quickly observed in Plates No. 16A and 17 of Series V. The normal fruit may still be green when the dappled spots start to appear and the premature ripening begins. The spots almost always show first on the suture side of the peach as is shown at (h) in Plate No. 16A, and at (d) in Plate No. 17. As the affected fruit ripens or matures, the spots increase in number and in many varieties the matures become highly colored. Figures (a), (c), (e) of Plate No. 16 and (a) and (b) of Plate No. 17 illustrate how heavily mottled and deeply colored mature peaches develop. These varieties, especially the Elberta, do not color up highly normally.

An examination of the flesh of a ripe mature peach will reveal the fact that the red spots do not extend into the flesh but are just beneath the skin, and that the flesh close to the pit is often deep red. Red streaks run from the pit toward the skin also.

Mature fruit, generally the first sure sign of yellows, may appear a month, to the day, before the time the variety is normally

ready to pick. If the prematures appear several weeks early, they always develop larger than the fruit on a healthy tree, or, if it is the first year the disease has appeared, in some varieties the prematures develop larger than the healthy ripened fruit. The increase in size of the fruit in Plate No. 9 of Series II illustrates this point. But if the fruit is nearer to the usual time of ripening, prematures are about normal size. Prematures on trees affected by third or fourth year yellows are smaller than normal. The varieties on Plate No. 6 show that the prematuring took place a week to several weeks prior to the usual time to pick. The normal peaches were taken from another limb on the same tree or from a healthy tree of the same variety. Note the greatly increased size of the prematures and how green the normal peaches were when prematuring started.

The quality of premature peaches is poor. While they are always very juicy, the juice is rather astringent, slightly puckery and acid. This peculiarity is noticeable in all the fruit of an affected limb whether the specimen has the dappled spots on the skin or not. One side of a highly colored premature is very likely to be hard and unfit to eat, while the other side is mellow. It is for these reasons that the sale of prematures does not prove satisfactory to the consumer and dealer.

In determining whether a peach is a premature, it is best not to depend on the streaking of the flesh because certain varieties naturally have quite streaked flesh. But no variety normally has red blotches on the skin. Note that the normal fruit in Plate No. 18A is either deeply blushed, streaked with deeper red in the Dewey and Graves, or is brightly blushed in the Foster. No red spots distinctively outlined appear on normal peaches.

These characteristic blotches, if not on all specimens, always appear on the skin of some specimen on an affected limb, although it takes a few minutes sometimes to find a specimen which has typical dappled spots. With some varieties the mottling is less dominant than in others, as for instance with early or late Crawfords or Elbertas. In these varieties one often finds a limb with prematurely ripe fruit, few specimens of which show mottling. On the other hand, among the early white varieties and many of the later ones very few non-mottled prematures will appear.

Where mottling is rare or indistinct, mistakes will not be made in determining whether a tree is diseased if other characteristics are kept in mind. The distinct yellow shade of the foliage of a limb coupled with the fact that it holds fruit which is ripened before the usual time, while on the rest of the tree the foliage and fruit are normal, is sufficient evidence of yellows. By the time a premature appears the tree is completely infested with the disease.

Unless a diseased bud produced the tree, trees seldom, if ever, come down with yellows till they are three years old. Hence, it is seldom necessary to make examination of an orchard younger than three years old where a system of community inspection is carried out. However, it is wise for the fruit grower to keep close watch of his young trees from the start so that the first suspicious tree can be removed at once.

During the fall of 1911 and the spring of 1912, several trees diseased with yellows were examined. It was found in the fall that the fruit and leaf buds had swollen and partly burst the bud scales. In the spring at blossoming time, it was found that most all the fruit buds had been killed. This undoubtedly accounts for the fact that generally but few peaches ever develop on a tree badly diseased.

SERIES VI

LITTLE PEACH

Of the two diseases, little peach is by far the most difficult to determine. In the case of yellows, a typical premature peach or a wire-like shoot with narrow leaves is evidence enough to condemn the tree as diseased. These two characters are distinct and easily detected. But in the case of little peach, foliage characters are the most prominent figures, and this being true, a knowledge of the characteristics of varieties and the effect on the foliage of attacks of fungi and insect life must necessarily be attained.

TIME OF APPEARANCE

The little peach disease begins to appear later than the yellows, and it is quite distinct till late in September, even after the fruit has ripened. Especially is this true in the case of the Elberta types of peaches.

FOLIAGE TYPES

This brings us to a consideration of the types of peach foliage. We find that all the varieties of peaches grown in the north can be grouped into two distinct foliage types. For instance, the Elberta has a long, wide, rank and straight leaf with a natural drooping inclination, while the Crawford has a short, wide, crescent-shaped leaf which stands out from the twig at right angles. For convenience we will call these the Elberta type and the Crawford type of foliage, illustrated in Plate No. 19. The following is a list of varieties belonging to the Elberta type and one to the Crawford type of foliage. While these lists are not complete, they will serve to aid in the field in observing the difference between varieties, and clear up a difficulty in detecting the characters of disease.

VARIETIES

*Elberta Type**Crawford Type*

Elberta
Smock
Salway
Niagara
Carman
Red Cheek Melocotone
Triumph
Greensboro
Stevens Rare-Ripe
Yellow Bergen
Iron Mountain
Dewey
Champion
Hills Chili

Early Crawford
Late Crawford
Black Crawford
Yellow St. John
Reeves Favorite
Graves Early
Wheatland
Foster
Lady Ingold
Wheatfield
Plain Surprise
Fitzgerald
Chairs Choice
Globe
Billmeyer
Barnard

PLATE No. 19

VARIETY, ELBERTA

Series VI covers the little peach disease in the Elberta variety of peaches. The long, wide, rank, drooping leaves of the Elberta are well illustrated in Plate No. 20 of the series. Notice the difference in the natural growing habit of the leaves in this variety and the Crawford type of foliage in Plate No. 3.

The first year of the disease in a tree causes strong characters to appear in the foliage and slight ones to appear in the fruit of the affected part. Only a small portion of a limb may show the disease the first year, as is true in case of yellows. Differing from any other trouble, this disease does not affect the tip leaves of the branches the first two years. They will stay absolutely normal, but the leaves below the tip will have a shade of yellow and a very plain drooping tendency, especially on the branches which grow vertically. The leaves below the tip will appear withered but on examination they will feel as turgid as a healthy leaf. See Plate No. 21.

In the Elberta variety the fruit is more severely affected the first year than in most other varieties. This is particularly noticeable before the fruit begins to color. In Plate No. 21 the fruit is found to be under size. This plate was made at least two weeks before ripening in order to obtain the earliest foliage characters. A decrease in size is noticeable in all the fruits of a diseased limb and they will ripen well colored, but the period of ripening is retarded a few days. The characteristic Elberta quality of the fruit is partly lost, the flavor being an insipid acid.

The second year the foliage characters appear more strongly, the normal tip and the yellow shaded drooping leaves having grown as large as normal but clearly affected. The fruit is decreased to the size of a prune and ripens two weeks late. In Plate No. 22 is a branch showing the foliage characters of this stage of the disease. The characteristic yellow shade and the drooping habit was ideal in this specimen. No stronger foliage characters ever appear.

The third year there is much less foliage, and it has become so much affected that the foliage characters are nearly lost. Many times most of the leaves will be quite dark green, but, as Plate No. 23 shows, they will be too small for the variety. The wood growth is very limited. The fruit is about the size of a walnut and seldom, if ever, ripens.

Plate No. 24 of the fourth year of the disease shows that very little foliage appears, many of the twigs having died. The foliage characters are absolutely lost and the fruit is very small, never ripening. The death of the whole tree follows.

SERIES VII

VARIETY, EARLY CRAWFORD

The effects of the little peach disease on the varieties of peaches having the Crawford type of foliage is considered here in the study of the disease in the Early Crawford variety itself. A hasty glance of the plates of Series VI and then of Series VII tells one that somewhat different foliage characters appear in the Crawford types. Again note the type of leaf of the natural Crawford foliage in Plate No. 25. It is distinctively crescent-shaped. All the leaves have a good healthy green color.

The effect of the disease on the foliage is seen in Plate No. 26. Observe that the tip leaves are as healthy a green as those of the natural foliage, and that the leaves below the tip are tinted with the same characteristic yellow common in both diseases. The tinted leaves seem to possess a drooping tendency, but when a comparison is made with the second year little peach foliage of the Elberta in Plate No. 22, it will be found that the tip third of each shaded leaf below the terminals has the habit of turning back. This makes a clumping effect and causes the seemingly drooping nature of the foliage.

Only a very small variation in the size of the fruit is apparent the first year, Plate No. 26, the same being true with the other varieties of the Crawford type of foliage. However, one familiar with the varieties will note quite a large proportion of the fruit on a diseased limb to be slightly under size. The fruit ripens a little unevenly and the quality is affected.

The second year the foliage characters are generally stronger. The disease has not yet affected the terminal leaves, and in almost all cases they will be found to be normal. But a decided change in the size of the fruit is quickly seen. Note the difference in Plate No. 27. This fruit never grows larger and ripens about two weeks late. The quality is very poor.

In Plate No. 28, the third year of the disease, the terminal foliage becomes sickly in color and the balance decidedly clinching in nature. This plate illustrates very well the characteristic turning back of the tip third of each affected leaf. Often the affected branches are loaded with partly developed fruit, as is

noticed in this plate. Where bud formation happens to be heavy the specimens may hang as thick as they can on the branch. The fruit, however, is the size of walnuts, never ripens and is apt to shrivel and cling to the branches through the winter.

The fourth year the foliage characters are entirely lost. Growth has practically stopped. The fruit is scarce and very small, not as many blossoms having developed as during the previous years of the disease. Death comes to the tree, or to the first affected part thereof, during the season. The sparse foliage, the last attempt of life of the tree, is illustrated in Plate No. 29.

SERIES VIII

VARIETY, NIAGARA

Of the varieties of peaches of the Elberta type of foliage, few show the disease plainer than does the variety Niagara. The first two years of the disease in this variety are considered in Series VIII, Plates No. 30, 31 and 32.

The heavy rank foliage of the variety is well illustrated in Plate No. 30. The effect of the first year of the disease is easily recognized in Plate No. 31, which shows the terminal leaves to be normal in color and the others below the tips to have the characteristic shade of yellow, the affected foliage inclining to droop. This plate was made four days before the variety was picked. Note that the fruit is about normal in size as well as color.

Plate No. 32 is the second year of the disease. Note that the foliage characters are clearly defined and that the fruit is much reduced in size. The plate was made the same day as Plate No. 31, but the fruit in Plate No. 32 would not ripen for two weeks. This corresponds, therefore, with the second year of the disease in other varieties. The third and fourth years of the disease are not unlike the corresponding years in the varieties previously described. The disease should be recognized the first year and certainly the second year.

VARIETY, SMOCK

The variety Smock is the most difficult of varieties in which to determine the little peach disease. The reason for this is that

the foliage, especially on full bearing trees, is small and has a yellow shade naturally, as illustrated in Plate No. 33. With the small leaves inclined to hang down as the Elberta or others of that type do, and at the same time a tinge of yellow general throughout the foliage, the first year characters of the disease are not easily recognized. However, the careful eye will find a suspicious tree to have a limb or more with foliage off color and the new growth of shoots to have foliage characters of the disease. Plate No. 34 illustrates the foliage of one of the shoots from a limb affected with the first year of the disease. A slight decrease is noticed in the size of the fruit on such limbs, but not until late in the season. The second year of the disease the foliage has a general yellow tinge. The effect on the fruit is very noticeable. The third and fourth years of the disease are quite alike in all varieties of peaches. It is very difficult to determine the variety in some cases of the third and fourth years of the disease, because of the severe effect of the trouble; but the characters are distinct from the effects of other ailments or diseases.

PLATE No. 35

COMPARED EFFECTS ON THE FRUIT

On Plate No. 35 are shown specimens of peaches taken from trees having the first, second, third and fourth years of the disease. The size of a normal Elberta peach can be imagined from the size of the pre-mature (a) and normal (b) on Plate No. 16 of Series V. Note that the size of normal (b) on Plate No. 16, two weeks before maturity, is the size of the matured peach (a) affected by the first year of the disease in Elbertas on Plate No. 35. The same will be found true when the normal Early Crawford (f) in Plate No. 16A is compared with the diseased Early Crawford peach (b) on Plate No. 35. Bear in mind, however, that specimen (b) represents the average size of the peaches on a limb of the variety affected by the first year little peach disease.*

* It has been stated previously that the size of the Elberta is affected severely by the first year of the disease while in the Crawford varieties there is an unevenness in the size of the fruit, greater than normal, but not generally recognized.

The plate shows that the second, third and fourth years of the disease affect the fruit of one variety the same as it does the other.

PREMATURE BURSTING BUDS

In this disease, as in yellows, the premature bursting of the buds in the fall is apparent. During the observations as noted in the description of yellows, many of the fruit buds on trees diseased with little peach were found dead, but a much larger percentage were alive than where the tree was affected with yellows. Again, this tallies with summer observations, for a tree affected with little peach is often loaded with fruit much inferior in size, while as stated in the yellows description, very few premature fruits appear on a tree affected by the third or fourth year development of that disease.

DETERMINING DISEASED CONDITIONS

It is the custom of many fruit growers to remove trees which show the effect of the disease on the fruit. This generally means that the trees have the second year of the disease at least, and many times, the third year.

During the thirteen years of systematic inspection work by the Department in western New York many cases have been found where the above custom was practiced. In all such instances the practice did not hold the disease in check and as a result the whole orchard, or a large part thereof, was destroyed by the disease.

Hence, the first year foliage characters of the disease are extremely important, because, if they are well understood, the grower will not allow first year cases to stand to unquestionably be a source of dissemination of the trouble in his orchard.

The tree affected, showing branches with healthy foliage at the terminals and the leaves below, drooping or clinching in nature with the definite shade of yellow, should be marked and removed as soon as possible. No other cause of trouble produces foliage characters by the close of the growing season like the little peach disease. Repeated experiments have proven that a tree with a shoot of the size and with the foliage characters presented in Plate No. 22 of Series VI, growing from one of the main limbs below

other large branches, will show the disease throughout that limb and in some instances in other limbs of the tree the following summer.

Many conflicting cases will appear to the beginner, one of which is the first, second and third years of the disease on the same tree without any apparently healthy foliage. In such cases the foliage characters must be kept clearly in mind, and an effort made to obtain on some limb the characters of the first or second year of the disease. Another is when the varieties in an orchard are badly mixed, and the disease occurs on both of the foliage types of peaches. A clear idea of the characters of the disease and an eye quick to grasp small changes natural among varieties will eliminate conflicting cases.

ANALYSIS OF CONFUSING CHARACTERISTICS

In the Elberta, Black Crawford and many other varieties, the yellows in its early stage causes the foliage to possess characters very similar to those recorded in the little peach disease. Because of this fact the observer may become confused. Hence, the details will be stated as follows:

1. If the variety is Elberta (or others of the Elberta type of foliage), and the disease is yellows, the fruit of the affected limb will be normal size, or possibly slightly larger. Premature fruit will soon appear. The terminal foliage will be normal at first but will take the characteristic shade of yellow later.

2. If the variety is Elberta, and the disease is little peach in the early stage, the fruit of the affected limb will be decreased in size and will ripen slightly late. The branch will have strong foliage characters of the disease and they will not change that year.

3. If the variety is other than Elberta, but of the Elberta type of foliage, and has normal terminal leaves with yellow drooping leaves below, and no premature fruit has appeared, it is a question which disease the tree has.

4. If the variety is the Early Crawford (or other varieties of the Crawford type of foliage) and the disease is yellows, the foliage below the normal tips will have the yellow shade, and the

fruit will be normal or slightly larger. Prematures will appear and the terminal foliage will become shaded with yellow.

5. If the variety is the Crawford (or other varieties of the Crawford type of foliage), and the disease is little peach in the early stage, the foliage below the normal terminal leaves will be clinching in nature and of the yellow cast. The fruit will be about normal in size and will ripen almost on time.

FROZEN TREES

It is well to explain the effect of frost injury that it may clear the mind of an observer of peach diseases. Frost injury to the crown and roots is the most important as it shows in the foliage. Frozen trees generally will push forth their leaf and fruit buds in the spring as well as a healthy tree. Generally it will make some growth. But when the dry weather of July and August comes, the leaves of the trees will suddenly wither from stem to tip and in a few days the trees are entirely bare. Half frozen trees show general withering and rolling of all foliage, and do not die quickly. The same is true when a tree is cut off by peach borers.

IMMUNITY

In New York State we have noted but little variation in the susceptibility of varieties. Still in a badly diseased orchard of several varieties one often finds the blocks of Smocks or Salways apparently immune to the diseases for several years. And then all of a sudden, as if these varieties had all become inoculated at the same time, they will come down with yellows or little peach. However, no variety is immune to either disease.

CONCLUSION

While different observations may be recorded when once we have the cause of the two diseases and can run experiments, the above descriptions of foliage and fruit characters are as we know the diseases after a study of several years. Little has ever been done to determine the true cause of the two diseases and much less has been written. It is the desire of the writers of this

bulletin, however, to give a clear idea of the diseases as they are now known so that more fruit growers will acquire a knowledge of the characters, especially those of the little peach disease.

Peach growers should be watchful for the first appearance of disease prior to August and can have the assistance of experts of the Department of Agriculture on application.

STATE OF NEW YORK
DEPARTMENT OF AGRICULTURE

CALVIN J. HUSON, Commissioner

Bulletin 62
(Part I)

Report of Farmers' Institutes

Including Addresses

Year June 15, 1913, to June 14, 1914,
Inclusive

BY
EDWARD VAN ALSTYNE
Director

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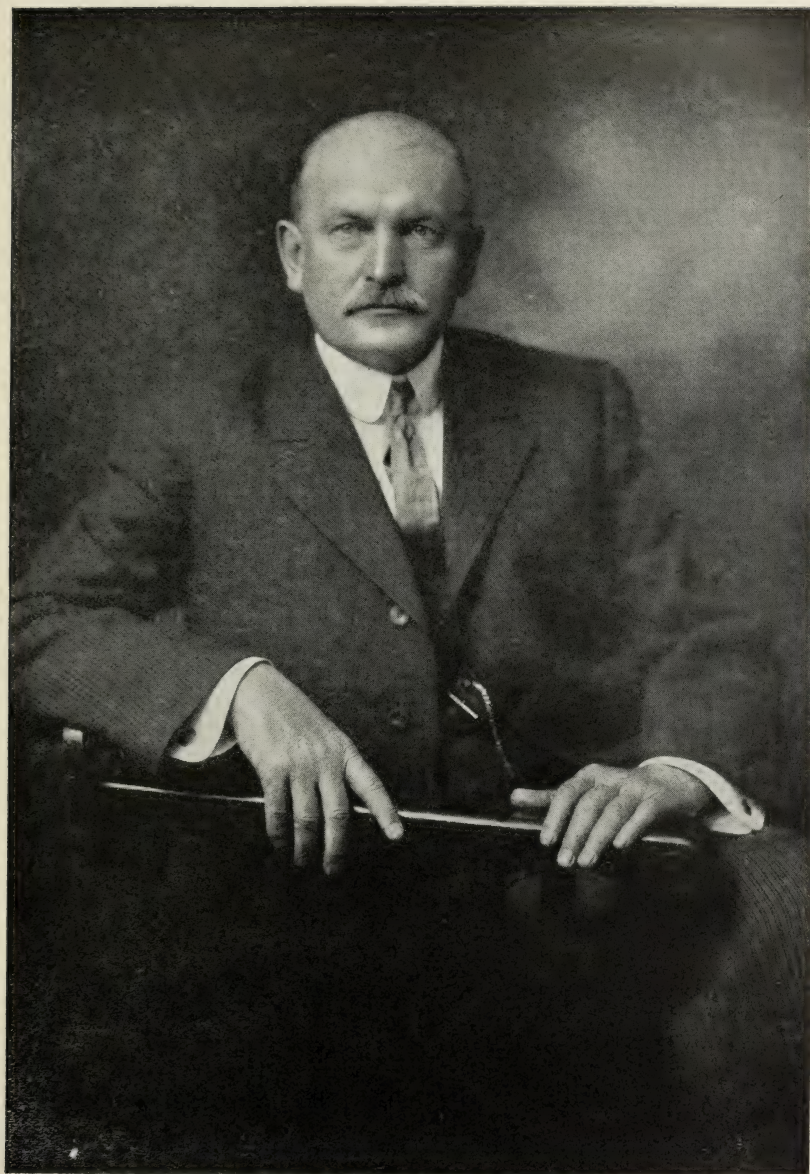


FIG. 255.—CALVIN J. HUSON, COMMISSIONER OF AGRICULTURE.

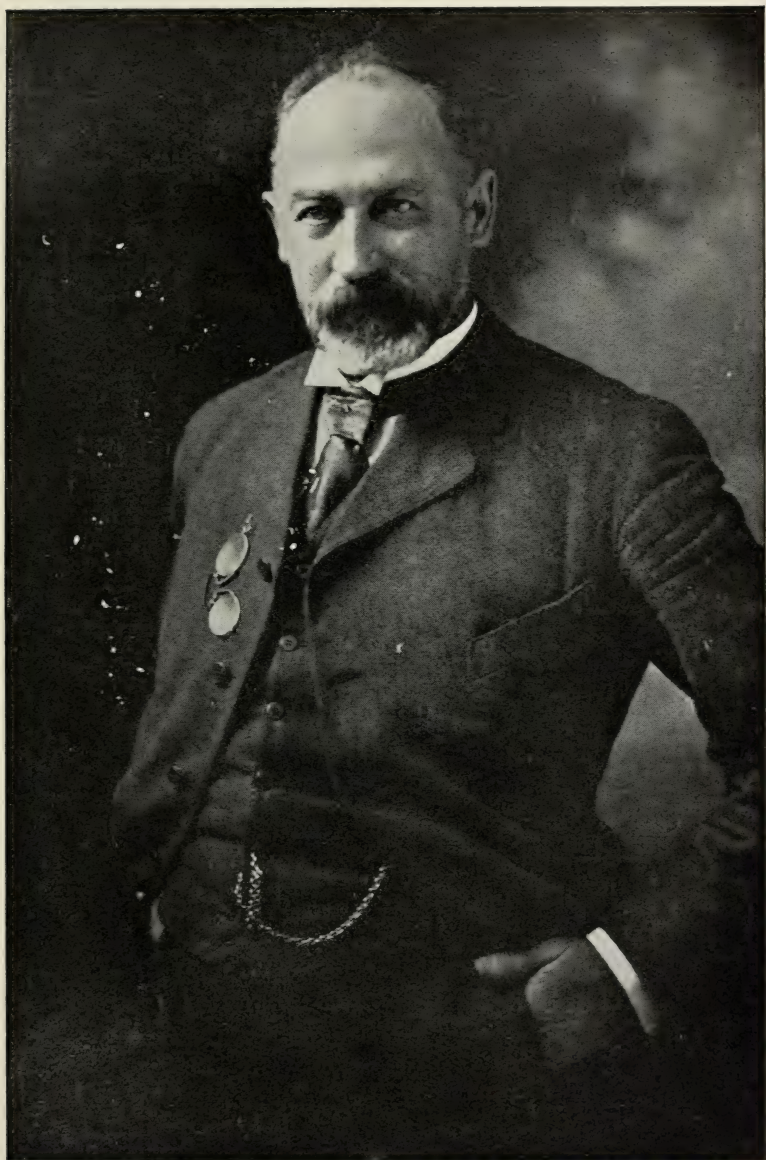


FIG. 256.—EDWARD VAN ALSTYNE, DIRECTOR OF FARMERS' INSTITUTES.



K. M. COSGRAVE
Editorial Clerk



E. M. COUSE
Secretary and Stenographer



W. F. McDONOUGH
Assistant to the Director



EDITH VAN WAGNER
In Charge of Cow Testing Records



E. R. GREENWAY
Technical Assistant

REPORT OF FARMERS' INSTITUTES

JUNE 14, 1914.

To Honorable CALVIN J. HUSON, *Commissioner of Agriculture, Albany, N. Y.:*

MY DEAR SIR:—At the close of my second calendar year as Director of Farmers' Institutes, I herewith present to you and through you to the people of the state, my annual report.

Intentionally I make this introduction and summary of the work brief, believing it wiser to particularize on the different phases of the work under separate heads. I have devoted much of the space to an outline of the work and workers, as I desire to set forth with the utmost fullness what the Bureau of Farmers' Institutes is doing and the personnel of the workers, in order that all interested may be able to form a correct estimate of the value of the work to the state and of those who are carrying it on.

Inasmuch as you have assigned to me the publication of special bulletins on agricultural matters, I have not devoted so much space to instructive material as in my last report, but in that portion of the report have confined the matter to the cereal crops of our state.

The work of the year has been most satisfactory, judging from the response coming from those who have received it and the demand for further work along our various lines of endeavor. Requests are already coming in for meetings and other work, and inquiries as to when county conferences are to be held.

The snow blockades over the entire state necessitated the abandonment of five institutes entire and of ten sessions in ten others, besides materially decreasing the attendance in scores of other meetings. In view of these conditions I have been surprised and gratified to note the attendance at many places where the weather or roads were so bad as to make one marvel how people could attend at all.

The College of Agriculture, the State Experiment Station, the State Conservation Commission and the State College of Forestry

at Syracuse have again rendered most valuable assistance in supplying experts in special lines. Dr. E. P. Felt, State Entomologist, has been ever ready to respond to calls for his services. Whenever there has been a demand for someone to treat a special subject I have made an effort to meet it. When it is understood that all these men not only received no extra compensation for this service, but must do it in addition to their regular work, often to its serious inconvenience, beside being obliged to subject themselves to the many discomforts of travel, their efforts cannot be too highly appreciated by all concerned. Our secondary schools of agriculture and the farm bureaus have also materially contributed to our working force.

Your Director has personally visited all the agricultural counties of the state, and held conferences in fifty of them, where he has met those most interested in the agricultural welfare of these counties. He has traveled 17,812 miles the past year in the interests of the state, has personally conducted three Rural Life Conferences, four special three-day round-up meetings, and six regular institutes, besides attending others; he has represented the department at the National Dairy Show at Chicago, the National Meeting of Farmers' Institute Workers at Washington, D. C., the State Dairymen's Association Meeting at Syracuse, the State Fruit Growers' Meeting at Rochester, and Farmers' Week at Cornell University. It was with much regret, owing to physical reasons, that he was unable to fill other engagements during the latter part of the season.

Renewed emphasis has been put on the women's work during the past year, as well as on the subjects of farm management and cooperation. A list of the subjects treated will be found on page 1851. These will give an idea of the scope of the work.

While giving due consideration to matters pertaining to farm practice, crop and live stock, particular emphasis has been laid on those things which tend to elevate the individual and all that would make rural life better. This effort has had the hearty support of all the workers.

As a summing up of my conception of the institute work, I would quote a definition I previously had occasion to give in defining its scope:

“To bring to the men and women on the farm and to their children who have had no other opportunities to receive it, a knowledge of the fundamental principles of agriculture as they are known, with practical advice based on these principles, as to their application and practice on individual farms from an economic standpoint; and together with this to bring to them an appreciation — to quote Dr. W. H. Jordan — that ‘the art of agriculture will never rise higher than the level of the man who manages the land.’”

Most respectfully submitted,

EDWARD VAN ALSTYNE,
Director of Farmers' Institutes.

INSTITUTE WORKERS

In the following pages will be found the pictures with the homes and buildings of the regular workers and a short sketch of matters concerning them, in order that the people of the state with whom they associate may have full knowledge of what is behind them. Their dates of service will be found in a list given later in this report, showing transient workers and those from outside the state.

It has always been the policy of the Director to use each year some help from outside the state. While such may not be so familiar with local conditions as our own men, treating their subjects as they do from the standpoint of the underlying principles, they necessarily teach sound doctrine which has added force coming from men of standing who are unbiased by local conditions. They also introduce a needed variety as well as an outside viewpoint. The contact of our own workers and people with the leading men in agriculture from other states tends to broaden the vision of both and keep them out of a rut. This past season the bureau has had for six weeks the services of Dr. William Hart Dexter, formerly of this state, now of the Bureau of Plant Industry, U. S. Department of Agriculture, Washington. He has specialized on dairy topics, farm management and rural citizenship. Mr. F. L. Allen, a successful farmer and institute worker of Burton, O., now manager of the farm bureau of Geauga County, Ohio, assisted for six weeks, taking up the subject of farm management and soils, with particular emphasis on drainage. Mr. R. A. Hayne, another Ohio farmer from Adena, and an institute worker in that state, was with us for one month. Mr. Hayne presented most acceptably the subject of live stock, including horses, sheep, swine and dairy cattle, with timely advice pertaining to their care and feed. Mr. Hayne has since been made one of the contributing staff of the National Stockman. Dr. G. M. Twitchell of Auburn, Me., gave us two weeks. He is one of the veterans in institute work. He came rich in experience as an experimenter, mellowed by age. Aside from his treatment of the subject of farm crops, those who heard him will particu-

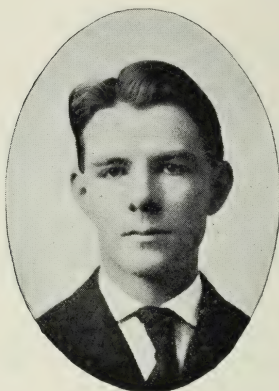
larly remember him for his broad philosophy and stimulating words, leading to a higher conception of the farmer's calling.

Mr. Geo. L. Gillingham of Moorestown, N. J., was with us eight days. Moorestown is one of the best agricultural centers in New Jersey, within driving distance of the great cities of Camden and Philadelphia. Consequently land values are high and only the most intense and best farming will pay. Mr. Gillingham specializes in dairy and poultry. He is also an authority on pigeons. An exceedingly good article on this subject by him will be found in our Poultry Bulletin to be issued in October.

The relations between the New Jersey Agricultural College and the New Jersey Farmers' Institutes and the Director of Farmers' Institutes of this state have been very close. They have frequently sent us expert assistants, particularly for our Farmers' Days and meetings held not far from the New Jersey line. Professor H. R. Lewis, Poultry Husbandman, was with us at four of the Long Island Institutes, as well as the Schuylerville Farmers' Days and gave two special lectures in the Columbia University course. He has also written three articles for the coming Poultry Bulletin on "Brooders and Brooding," "Sanitation and Disease Prevention" and "Some Common Poultry Diseases and Simple Methods for their Control."

In addition Professor Alva Agee, Director, Department of Agricultural Extension, New Jersey Agricultural Experiment Station, was with us at one institute and one special meeting. F. C. Minkler, Professor of Animal Industry, New Jersey State College of Agriculture, assisted at Schuylerville. He will furnish an article on "The Value of Forage Crops in Pork Production" for our Swine Bulletin to be published in September. Professor A. L. Clark, Assistant in Extension, now in charge of Farmers' Institutes, spoke at Unionville on Poultry, and Professor A. J. Farley, Assistant Horticulturist, at Tallmans on Peaches.

JOHN H. BARRON



Mr. Barron was born and reared on a farm in western New York. His early education was received in a district school, after which he attended school at Nunda, N. Y., and was graduated from the high school there in 1900. In 1902 he entered the College of Agriculture at Cornell University, being graduated in 1906.

In college he gave special attention to the study of soils and farm crops. In his senior year he was elected to Sigma Xi, the honorary scientific society of the university, an honor bestowed upon those doing exceptionally good work along scientific lines.

Since graduation he has had opportunity to observe agriculture in a rather comprehensive way, having served the U. S. Department of Agriculture and the Pennsylvania Experiment Station at State College, Pa. For two years he was Farm Bureau Agent in Broome county, the first bureau established in the state. At present he is employed in the Division of Extension Teaching in the College of Agriculture, Cornell University.

Prior to taking up the Broome county work he was one of the lecturers on the Farmers' Institute force. After resigning as Farm Bureau Agent, he returned to the home farm at Nunda, Livingston county, participating in its management with his father and brother. They grow wheat, barley, beans and clover seed as money crops, and specialize in draft horses.

For the past two institute seasons Mr. Barron has served as instructor at the Farmers' Institutes, having charge of one of the corps of workers. His specialties have been treatment of soils, including drainage, use of lime, and commercial fertilizers and their makeup. He has also specialized on the care of meadows and pastures, and on farm management. At the close of the institute season he accepted a position in the Division of Extension Teaching in the College of Agriculture, Cornell University, which will occupy all the time he can spare from the farm.

FREDERICK E. BONSTEEL



Mr. Bonsteel was born at Huntington, West Virginia, in 1876, and was educated at Ten Broeck Academy and Cornell University. His early life was spent on a dairy and grain farm in Western New York, with the exception of a few years' practice of pharmacy. In 1900 he entered the Bureau of Soils of the U. S. Department of Agriculture as soil expert, remaining in charge of survey parties until 1905, when he was transferred to Soil Management, associated with Professor F. D. Gardner, now of the Pennsylvania State College.

In 1906 he took up editorial work along agricultural lines with Doubleday, Page & Co., of New York City, resigning that position two years later to take up the problem of reclaiming some of the worn-out and practically abandoned farms of northwestern Pennsylvania on his own account. He is now operating 250 acres of such land in dairy stock and grain, and 60 acres in New

York in fruit, poultry and potatoes. He did some work in the New York institutes during the season of 1912-13, and was engaged most of the time the past season lecturing on dairy matters, soils, fertilizers, potatoes and other farm crops and practices.

JOHN G. CURTIS



Mr. Curtis was born on August 8, 1870, and received his earlier education in the public schools of Rochester, later graduating from the Genesee Wesleyan Seminary. He is a farmer living four miles west of Rochester, New York, his farm, consisting of 130 acres, being part of the old homestead which was occupied by his father and his grandfather since before the Civil War; the family having box 272 in the Rochester post-office for over sixty years.

During most of this time the farm was a dairy farm with timothy hay for the money crop, but of late years Mr. Curtis has given especial attention to the growing of alfalfa hay for market and the raising of large Yorkshire swine, keeping a herd of about fifty registered brood sows.

He has made a special study of soils in various sections of the United States, and has also visited and studied the phosphate mines of South Carolina, Florida, Tennessee and Canada.

He was in charge of the collection and installation of the U. S. Government exhibit of fertilizer materials at the World's Fair at St. Louis in 1904, and contributed an article on "The Commercial Growing of Popcorn" for the Cyclopedia of American Agriculture.

For the past ten years his time has been employed during the winter months in lecturing at Farmers' Institutes upon subjects relating to soil fertility, care of meadows, alfalfa and swine. He is a strong advocate of the judicious use of available fertilizers where needed, and believes that the restoration of the organic matter to our worn soils is of first importance in an economic system of agriculture.

JOHN A. ENNIS



Mr. Ennis was born in Tioga County in 1856, where his father was a practicing physician. He attended the district and select schools until 1876, during which time he worked on farms in the summer. Later his father moved to and practiced his profession in Pattersonville, Schenectady county.

Having shown a desire to engage in farming, his father bought a small farm near their home of which he took charge. In 1888, having determined to become a farmer, he bought a run-down farm in that locality, for which he went heavily in debt, and paid for it from the sales from his dairy and timothy hay. He also remodeled all the buildings. Starting with such cows as he could pick up, and using with them a pure-bred Jersey sire, in less than twenty years he raised a herd bred on his own farm that made an average of nearly 400 pounds of butter per cow a year. Mr. Ennis has always attributed much of his success and enthusiasm for agriculture to attending the first institute held in this part of the state at Schenectady in 1885.

About six years ago he sold his farm and moved to Pattersonville where he built a house adjoining the small farm of his father. On this he has specialized in poultry and small fruits. He did his first institute work during the season of 1900-1901, and with the exception of one year has been connected with the

work ever since. His chief themes have been along the line of dairy work, farm crops and small fruits. For the past year he devoted most of his time to organizing and looking after cow testing associations with some inspection and follow-up work. Because of his skill as a butter-maker and practical experience with dairy cattle he was selected by Mr. van Alstyne as butter-maker and first assistant in the Model Dairy breed test at the Pan-American Exposition in 1901, where he made the butter from the ten breeds on exhibition, as well as looking after many of the important details.

DR. M. HAMILTON



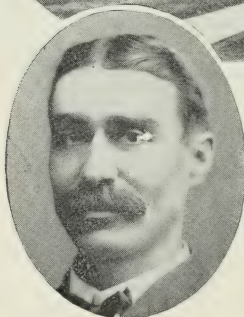
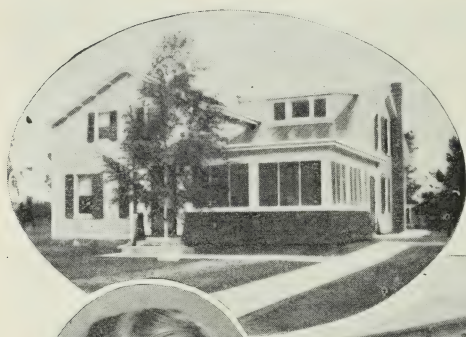
Dr. Hamilton was born at Cicero, Onondaga County, N. Y., in 1874, on the farm where he spent his life up to the time he attended college. This farm he now owns and manages in partnership with his brother. He also has a dairy farm of 150 acres in Delaware County which he supervises. This farm keeps about forty cows.

After attending high school and Park College Academy, and the Oswego State Normal School one year, Dr. Hamilton decided to make farming his life occupation and returned to the home farm, which he had rented for four years, beginning 1897 when he married. Two winters he taught the district school in the neighborhood.

The hard times in the nineties caused him to move to Ithaca in the fall of 1902, where he entered the Veterinary College graduating in 1905. He located at Delhi, Delaware county, one of the greatest dairy counties of the state. There he has built up a large

practice as a veterinarian. He has spent about half his time in his private practice; the balance for the Department of Agriculture. He has assisted at intervals at Farmers' Institutes the past several seasons. Having the misfortune to lose his wife in the spring of 1913 and thus his home being broken up, he was able to devote his time during the entire season to the Farmers' Institutes, giving most practical advice along all lines of diseases of domestic animals as well as to matters pertaining to their care and feed, all of which he is able to speak out of the depths of his experience.

WILLIAM HOTALING



Mr. Hotaling was born in 1869 at Hudson, Columbia County, N. Y., the son of a farm laborer. He attended various district schools in Columbia and Greene counties until he was twelve years old, from which time he worked on farms until he was eighteen, when he went West, visiting practically every state between New York and California and as far south as Virginia, Missouri and Kentucky. In this way he spent about eight years, during which time he enlisted and served in the regular army, finally marrying and settling in Illinois. In 1895 he moved to Kinderhook, N. Y.

Mr. Hotaling always leaned toward horticulture and landscape work, and, while he has never had what might be called a scientific training, yet from a boy has read every work obtainable along these lines. He has also been an experimenter, probably working with more varieties of fruits and flowers than any man outside of the Experiment Station and College of Agriculture.

Twelve years ago he bought a run-down place of twenty-two acres at Kinderhook, which he has built up into one of the most

attractive fruit farms in the community. On this place he has done much testing out of new varieties in connection with the Station and College, also testing spray mixtures and insecticides in connection with the State Entomologist and others.

About four years ago he took the supervision and building of a fruit farm a few miles from his own home. There he has put out to date approximately 3,500 apples, 3,200 cherries, 2,500 pears, 600 peaches, 20,000 currants, 4,000 grapes, 3,000 blackberries and 2,000 gooseberries. He has also at the present time 3,000 chickens. Besides caring for his farm he has been engaged in building roads, grading, installing a water system, building two new houses and remodeling another.

Mr. Hotaling was invited to do institute work under Commissioner Pearson in 1909, and has worked continuously for the Farmers' Institute Bureau for the past four winters. His chief topics are along horticultural lines, including both tree and bush fruits, and the insects and diseases which infest them. He also treats gardening and poultry, in both of which lines he has been very successful.

ANDREW J. NICOLL



Mr. Nicoll was born April 6, 1858, at Andes, Delaware county, N. Y. His father, William Nicoll, came from Scotland in 1839. He worked on his father's farm and attended the district school until 1878 when he began to teach school at \$3.50 per week and "board around." The next winter the pay was raised to \$3.75. In 1880 he entered Delaware Academy and in 1881 was a student of ex-governor Hughes, who taught there for one year. After completing his studies at the academy he continued to teach during the winters until 1890, when he married and purchased his present farm in the village of Delhi. In 1894 he was asked to take charge of the public school in Delhi.

In 1902 he resigned his position in order to devote his whole time to the dairy business. The milk from his farm has been retailed in Delhi for twenty-four years. The herd consists of thirty high-grade Jersey cows, averaging about 7,000 pounds of

milk and 330 pounds of fat. A pure-bred bull from a high producing dam has been at the head of the herd. In addition to the dairy, potatoes and hay are grown as money crops.

Mr. Nicoll was president of the Delaware County Agricultural Society for ten years. He conducted experiments in agriculture on the county farm under the direction of the College of Agriculture for three years, and in 1910 organized the first cow testing association in the state outside of the one at the college at Ithaca. In 1910 Commissioner R. A. Pearson asked him to do some work at the Farmers' Institutes, and in 1911 he wrote Bulletin 30 on the cow testing work in Delaware county. Most of the cow testing associations in the state are directly or indirectly the result of his efforts. Since 1912 he has been employed in the institute work of the state, lecturing principally on dairy matters, with lectures on "Farm Management" and "Farm Accounts" as well as on other farm topics. For the past two years he has had charge of a corps of workers.

Mr. Nicoll is a Presbyterian and has been for a number of years superintendent of the Sabbath School, is a ruling elder, and in 1903 represented Otsego Presbytery at the General Assembly at Los Angeles, California. He has been identified with the Young Men's Christian Association work in the county, being chairman of the County Committee.

ROY P. McPHERSON



Mr. McPherson of LeRoy, Genesee County, N. Y., was born on a farm in the town of Wheatland, Monroe County, N. Y. At the age of four his father moved to the old homestead near Le Roy, which had been taken up by his great-grandfather in 1801.

His early education was gained at a district school and at the Le Roy High School, from which he was graduated in 1895. The fall previous to his graduation his father was stricken with rheumatism, which left him an invalid. This threw upon Roy, the eldest son, the responsibility of managing the farm as well as the support and education of the family. His mother, who had always been a great inspiration to him, died in 1900.

Realizing that more education along agricultural lines was necessary and being unable to attend an agricultural college at that time, Mr. McPherson interested seven other young farmers, who were similarly situated, and organized a Cornell Reading Club. The club held weekly meetings for three winters, secured

Farmers' Institutes, held summer field meetings and in many ways aided the advancement of agriculture in that section.

The great responsibility began to tell upon Mr. McPherson's health and several months were spent in traveling. Upon his return, after an absence of eight months spent in eastern and southern states, he was thoroughly convinced that the farm still held the greater attraction for him and he purchased the old homestead in 1905. The winter of 1908 he attended the Cornell Agricultural College, taking the winter course in general agriculture. He was made president of his class.

Mr. McPherson has specialized along horticultural lines. The neglected apple orchards on the home farm, comprising some two hundred trees, have by careful management been made to produce a yearly average for the last five years of 515 barrels, or gross sales of \$1,200 per year. Another smaller orchard which the owner threatened to cut down because of non-productivity was purchased, and by intensive and thorough methods the gross sales for the first year were \$5 per tree and for the second year nearly \$8. He has rented neglected orchards on neighboring farms until for the year 1914 he has twenty-eight acres of bearing apple orchards. He has just finished setting out an orchard of ten acres. These trees he grew on his own farm, choosing for the orchard trees of a certain type.

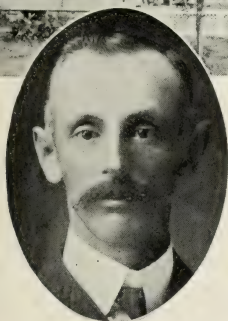
His experience has demonstrated to him the importance of early and intensive cultivation, thorough spraying of his orchards and the careful grading and packing of the fruit. About thirty acres, comprising the more uneven fields of the farm, have already been seeded to alfalfa. Mr. McPherson thoroughly believes in the practical value of alfalfa and plans to increase his acreage of it. Considerable wheat, clover, beans and corn are in his rotations.

For the last five winters Mr. McPherson has given some time to Farmers' Institute work, and during the winter 1913-14 he had charge of a corp of workers and a series of meetings. A portion of the winter of 1913 he was released in order that he might assist Professor Tuck of Cornell in the Extension Schools. His teaching in these schools received much favorable comment from his associates and those in attendance.

His chief subjects are "The Neglected Apple Orchard" "Building up the Old Farm" and "Soil Fertility".

Mr. McPherson was married to Miss Ethlyn L. Hull of Madison, Connecticut, in 1910. They have one daughter.

IRVING F. RICE



Mr. Rice was born at Truxton, Cortland county, October 17, 1867, having the advantage of the rural schools only. He became a mechanic in the city of Cortland. After two years of ill health he was convinced that he must spend his life in the country, and eighteen years ago he purchased his present home one and one-half miles from the city of Cortland, consisting of twenty-six acres. His house is lighted by his own electric plant and he has installed a water system. This has been entirely paid for from the poultry business in which he started in a small way, and as he became familiar with details gradually extended until he now has a flock of 500 adult fowls and 1,800 young chicks. The entire farm is devoted to poultry and such crops as can be utilized in the business.

Mr. Rice is now recognized as one of the most successful single-comb white leghorn breeders in the country and an authority on all matters relating to poultry. As evidence of this he has judged

and has been invited to judge again at the great Madison Square Garden Poultry Show as well as several other of the largest poultry shows in the country, including New York State Fair, Pennsylvania and others.

He has served as master of his subordinate grange and also of the Cortland County Pomona Grange.

F. A. SIRRINE



Mr. Sirrine was born near Newark, Kendall County, Ill., on November 22, 1861. His earliest recollections of agriculture were in Bureau county, Ill., on a stock, or rather drover's farm. At the age of six his father took him to Iowa to chase cows and steers over the prairies. He attended the district school winters until he was twenty years of age, after which he had the privilege of going to the village high school for two winters. In 1882 he taught school in a sod schoolhouse in Nebraska and in 1884 began work as student at the Iowa Agricultural College.

As an undergraduate he worked one year as botanist of the Iowa Experiment Station. He was graduated in 1891 with a B.S. degree, after which he became assistant in zoology and entomology for one and one-half years, obtaining his M.S. degree in 1893 at the same college.

In 1894, when a branch office of the New York Agricultural Experiment Station was established at Jamaica, L. I., he accepted a position as entomologist. Here he remained until 1902, when this office was discontinued. He then moved with his family to a farm which he purchased at Riverhead, L. I. He was given the position of special agent with the New York Agricultural Experiment Station, which situation he still holds.

He began institute work in New York State under Director F. E. Dawley the season of 1894-95.

He married Miss Lillian L. Smith of Jamaica, N. Y., in 1899 and has three children.

Mr. Sirrine's farm would not be considered a desirable one anywhere, particularly on Long Island. Much of the land is rolling and the soil rather light. In spite of this he has been eminently successful from a financial standpoint. He has gone quite extensively into peaches, selling his crops at good prices in the local markets. His success has stimulated an interest in peach growing throughout Suffolk county. He also specializes in potatoes and cauliflower, and has been successful in establishing alfalfa. His proven ability to make a financial success on his own rather poor farm, coupled with his experimental work on the Island, has made him an authority, and one whose advice is much sought in his own county. For the past six years the people of Suffolk county have made special request that Mr. Sirrine be one of the instructors at their institutes. He treats not only of the crops he grows but also insects and diseases, particularly those affecting Long Island crops, as well as on the make-up and use of commercial fertilizers. By special request of his own people he has prepared lectures on "The Root Growth of Plants" and "Corn Selection and Development." His evening lectures, illustrated by the stereopticon, on "Some Common Insects" and "Our Bird Friends" are very much appreciated.

GEORGE A. SMITH



Dairymen throughout the country are familiar with the name of George A. Smith, one of the practical authorities in the United States in his particular field.

He was born in Otsego county, N. Y., in 1842, and his early life was largely spent on the farm. His education was obtained in the district school and at Whitestown Seminary, where he was graduated in 1859. For a time after that he taught school winters and worked on the farm summers. In 1863, in partnership with his father's brother, he ran a farm in the town of Exeter, Otsego county, N. Y., on which were kept sixty cows. They made cheese, and after a time began to take in the milk of surrounding dairies and make it up with their own. The reason for this was that at that time the English market demanded a cheese weighing 150 pounds, which a single dairy could not meet, and the simple way of solving the difficulty was the combining of the milk of several dairies. In two years the business grew to include the milk of 500 cows and was a success.

From there in 1867 they went to Frankfort, Herkimer County, N. Y., taking a factory that had been built by the farmers and had proved a failure under their management. Within a year he was able to convince the farmers that it was to their interest to patronize him, with the result that he was soon taking milk from over 1,200 cows and had one of the successful large cheese factories of Herkimer County.

From Frankfort he went to North Winfield in 1873, where he operated a large factory for three years, and going from there to Cassville, Oneida County, in 1876, he purchased a large factory and with branches in Bridgewater, Marshall and Sangerfield, he manufactured the milk of over 4,000 cows with an annual output of nearly 1,000,000 pounds of cheese.

In 1888, the Legislature passed a bill providing for the selection by the Dairy Commissioner of five instructors in the manufacture of butter and cheese. Mr. Smith was one of the first men selected by the Honorable J. K. Brown, at that time Dairy Commissioner, and since then has been connected with the dairy instruction work of the state.

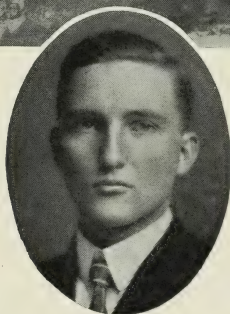
In 1893, he was made Director of the Farmers' Institutes in the state, holding that position until 1896. During this time the number of meetings held was nearly doubled from what it had been previously, and he placed the work on a sound financial basis.

During the time he has been at Geneva he has been able to give only two weeks each winter to institute work. This time the department has always gladly availed itself of.

In 1897, he worked for Cornell University in their dairy extension work. In 1898, he was put in charge of the dairy work at the New York Agricultural Experiment Station, Geneva, which position he has held since that time. His duties include the general oversight of the dairy of cows which are kept for experiments in feeding and the production of milk. He also attends to the practical side of the manufacture of the butter and cheese for chemical and bacteriological investigations, and has charge of the testing of the graduation of the Babcock glassware used in this state where milk is paid for on the basis of its fat content.

Mr. Smith is a Knight Templar, has twice been president of the New York State Dairymen's Association and was one of the New York State Fair Commissioners from 1900 to 1908. He had charge of the butter and cheese exhibit of the state of New York at the Pan-American Exposition at Buffalo in 1901, and was prominent in the organization of the dairy exhibit both at Chicago and St. Louis.

R. P. TRASK



Mr. Trask was born in the city of Haverhill, Mass., where he spent the first ten years of his life. Later his father moved to Sterling, Mass., where he engaged in poultry and truck farming. Here he remained until he was twenty years old, becoming thoroughly familiar with the practical end of both of these special lines of farming.

After he was graduated from the Sterling High School he went to Cornell where he specialized in poultry and horticulture. So proficient was he in the former that Professor Rice retained him as assistant in the Poultry Department and extension work at the university for four years. For a year he was assistant manager of a ten thousand hen ranch in Marion, North Dakota. For the past three years he has been engaged in the poultry business for himself with 1,500 laying hens, producing fancy eggs for the New York hotel trade. During this time he has maintained his connection with Cornell University as teacher at the college and

lecturer in the Extension Schools, doing some work for the Farmers' Institutes during the winter. So acceptable was he as a lecturer on poultry that the past winter the Bureau of Farmers' Institutes secured his entire time during the institute season. He has lectured most valuably on poultry and gardening.

He is now assisting the Director in preparing a bulletin on poultry to be issued in November. In March, 1914, Mr. Trask moved to North Wilbraham, Mass., where he has purchased a farm of twenty-seven acres and will devote his energies to producing poultry products for the cities of Springfield, Worcester, Boston and New York.

EDWARD VAN ALSTYNE



Mr. van Alstyne was born in 1858 in the town of Stuyvesant, Columbia County, the sixth in direct descent of a line of farmers on the same land deeded to his ancestor in 1667, who came from Holland.

He was educated in the district school, the Kinderhook Academy and Union Preparatory in Schenectady, from which he was graduated in 1875, registering in the freshman class of Union College. On account of the poor health of his father he did not go on with his college class. His father died the following year, from which time, at the age of eighteen, he has devoted himself to farming, his chosen calling.

In 1880 he purchased the home farm with a mortgage debt of \$13,000, in addition to his equipment. The farm contains over two hundred acres, all tillable land. In addition he owns an interest in 170 acres more only a short distance from the home-

stead. This too is part of the original van Alstyne purchase. His father was one of the first to plant orchards in the Hudson valley.

Mr. van Alstyne has always specialized in fruit and has found it the most remunerative part of his business. In his youth, his father kept beef cattle, first Herefords, later Shorthorns of the milking strain. While always feeding a large number of cattle, dairying was not taken up as a business until 1887, when he became a patron of a cooperative creamery, starting with twenty grade Jersey cows. For a time he was president of the Creamery Association. Later he manufactured his own butter for a fancy trade. Finding selling cream more profitable and less labor, he has for years marketed his dairy products in that way, keeping from forty to fifty milch cows, pure blood and grade Guernseys. So great has been the demand for his goods that he has purchased the milk from his neighbors to supply his trade. The skim milk is fed to calves and swine.

He has always kept sheep, formerly feeding fattening lambs during the winter in addition to a flock of breeding ewes. With the increase of the dairy the former have been abandoned and his flock now consists of Tunis ewes from which winter lambs are raised. He also grows hay and grain for market.

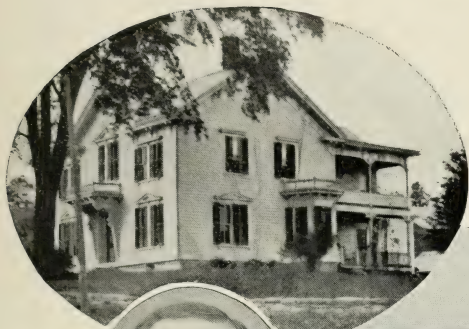
In 1889 he was asked to lecture before the Farmers' Institutes on sheep. From that time on he has devoted the major portion of his time during the winter to institute work, either in his own state or others. In 1909-10, under Commissioner of Agriculture R. A. Pearson, he was given charge of the sixteen counties in eastern New York, from Clinton on the north to Suffolk on Long Island, with Rockland, Orange and Ulster on the west side of the Hudson river.

In the spring of 1912 he was appointed by Commissioner of Agriculture Calvin J. Huson, Director of Farmers' Institutes for the state. This outside work has been made possible because of the assistance of his eldest son, who since his majority has been associated with his father, and since Mr. van Alstyne's acceptance of the directorship has managed the farms.

He became a member of the Grange soon after it was established in Columbia County and was for four years Master of

the Columbia County Pomona Grange. He has always taken an active part in all matters pertaining to citizenship, is a member of all the state agricultural and horticultural associations, vice-president of Western New York Horticultural Society and president of the National Association of Farmers' Institute Workers. For many years he has been a member of the Reformed (Dutch) Church of Kinderhook, serving as deacon, and elder, and superintendent of the Sunday school.

JARED VAN WAGENEN, JR.



Mr. Van Wageningen was born at Lawyersville, Schoharie County, in 1871, on the farm taken up by his great-grandfather in 1800. He received his education at the local district school and Cobleskill High School. After completing his high school course he attended the New York College of Agriculture at Ithaca, graduating from the four-year course in 1891. He then took a post-graduate course and received the masters' degree in 1897. He returned to the home farm, consisting of about one hundred and fifty acres, the main business of which has been dairying.

For a number of years Mr. Van Wageningen made the butter from the herd of about fifty cows, which were chiefly grade Jerseys. His familiarity with dairy matters brought him back to Cornell as instructor in butter-making in the winter. He also acted as instructor on dairy matters in the Agricultural Department of Rutgers' College, New Jersey, during the winter of 1907-08.

He assisted in the New York State Farmers' Institutes immediately after his graduation, treating chiefly matters pertaining to dairying. Since that time, except when he has been employed as above noted, he has been regularly engaged in the work, serving as conductor four seasons, having charge of the counties of Albany, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Madison, Montgomery, Oneida, Onondaga, St. Lawrence and Schoharie.

His line of subjects has broadened, including all matters pertaining to soils and fertility, farm crops and orcharding. Mr. Van Wagenen has been particularly acceptable as a speaker on broad themes such as "The Farmer as a Citizen" and those pertaining to rural betterment. Owing to the age of his father and the needs of his own growing family for the past two years, he has been unable to do continuous work, but the department has been glad to avail itself of his services whenever possible.

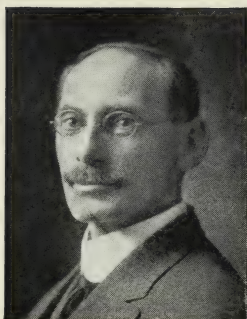
Mr. Van Wagenen began several years ago to breed Guernsey cattle and now has a large proportion of his herd either pure-breds or grade of this breed. His herd bull is a son of Governor of Chene. The product of the dairy is now sold in Albany as cream, the skim milk being fed to calves, poultry and Berkshire swine. He grows rye, wheat and timothy hay as money crops in addition to the products of the dairy. He also has a flock of fifty Shropshire breeding ewes. For several years he has taken up the growing of alfalfa, with which he has been quite successful, his land being limestone. He has a fair-sized apple orchard on the farm; small fruits are also grown in excess of the family needs. His farm is one of the best examples of successful farming in the state, one crop supplementing the other.

In spite of the fact that the farm has been so long in the family, improvements are still being made in the way of tile draining land and clearing it of stone. About twenty years ago a large barn was erected which is one of the most practical it has been our privilege to inspect.

He has installed an electric light plant from a dam on the farm which lights his house and buildings and the local church as well. The work on this was done almost wholly by Mr. Van

Wagenen himself. He has received many offers which would be considered flattering along other lines than farming, but without hesitation he has turned them aside in order that he might follow the calling of his father's on the land in his family for more than a century. He prides himself on his ability to do any and all sorts of the work called for on a farm of this character, especially on his ability to milk his own cows as well as to take care of their product. Mr. Van Wagenen has always been prominent in all matters pertaining to the welfare of the community, both church and state.

C. R. WHITE



Mr. White was born at Macedon Center, Monroe County, in 1865. In the spring of 1867 his parents moved on the farm at Ionia, Ontario County, where he now lives.

He received his education in the district school, supplemented by four years at East Bloomfield High School, and one year in the University of Michigan.

He became interested in scientific agriculture through the Farmers' Institutes and the work of Cornell University. He has been a member of the grange since 1885 and is a member of both state horticultural societies.

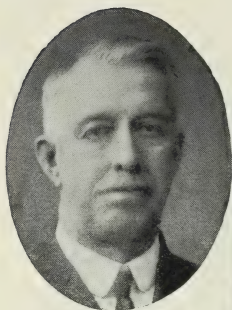
His father began draining the farm shortly after he moved on it. The son later adopted a plan of systematic drainage, first by hand and then with the Buckeye machine. In addition he has laid out and completed many thousand rods in surrounding sections. This experience makes him a very acceptable lecturer on the subject.

He specializes in potatoes and market garden crops, and grows considerable fruit and grain. In attempting to market these products to best advantage, he became interested in the market

problem as a whole, including cooperation. He has been the manager of a successful local cooperative association for marketing pickles and is chairman of the Committee on Cooperation of the State Agricultural Society. He was president of the State Vegetable Growers' Association from its organization in 1911 until February, 1914. For several years he has been a lecturer at Farmers' Week at Cornell University on cooperation and drainage. He has been an experimenter on his own farm along many lines.

All this has given him the best of material for lectures on drainage, potatoes, vegetables, cooperation, marketing, as well as soils. He lectured at a few special meetings in the season of 1912-13, and so acceptable was his work that he was employed for all the time he could spare the past season.

D. P. WITTER



Mr. Witter was born in 1852 at Richford, Tioga County, on the farm where he lived for nearly fifty years. His father was lame and one of his older brothers being killed and two others crippled for life in the Civil War, the burden of farm work fell to him when he was but fourteen years old. When he was twenty-three years of age he purchased sixty odd acres adjoining the home farm and worked the entire one hundred and seventy-five acres. On the death of his father he acquired the property, paying off the other heirs. The valuation of the farm being based on war prices and an inflated currency when he paid for it, in the early nineties, it would not have brought anywhere near the purchase price. In 1900 he sold the farm and moved to Berkshire, where he has since resided. He had been appointed administrator of a large estate in the West which required much of his time. His intention was, however, to purchase another farm more conveniently located and better adapted to mixed farming than was the old one among the hills—chiefly adapted to dairy and live stock. A serious sickness and numerous calls on his time for agricultural work, has prevented the accomplishment of that purpose.

He became a member of the New York State Dairymen's Association in 1880. From the incentive and knowledge he there obtained, he dates the beginning of his better farming. In 1902 he was elected president of this association, having formerly served as director. A few years later he made a special study of balanced rations. So successful was he with his own herd that he was called to speak before neighboring granges. In the winter of 1897 he delivered a few lectures from the Farmers' Institute platform. This work continued and since 1899 he has acted as conductor, delivering over 2,500 lectures. From 1908 to 1912 he had entire charge of the work in the counties of Allegany, Broome, Cattaraugus, Chautauqua, Chemung, Chenango, Cortland, Delaware, Otsego, Schuyler, Steuben, Sullivan, Tioga, Tompkins and Yates.

While he has specialized in dairy matters and soils, he has not been confined to these subjects, but has become an authority on general farm topics. For the past four years his services have been in almost constant demand as an adviser to individual farmers to whom he has been sent by the Department of Agriculture through the Bureau of Farmers' Institutes.

He has been a member of the Grange for over thirty years, being for two years master of his home grange at Speedsville. He is a member of the Congregational Church and has been an officer and for thirteen years superintendent of the Sunday school.

In 1895 he was elected to the Assembly and served five successive terms, being a member of the Committee on Ways and Means for the last two years and chairman of the Committee on Agriculture the last year. In 1899 he was requested by Governor Roosevelt to act as chairman of a commission to investigate the relation of bovine tuberculosis to the health of man. Hearings were held in the important cities of this state as well as in New Jersey and Massachusetts. Much valuable information was secured which has been the basis of most of the legislation on this subject since. The appropriation for this investigation was \$25,000 and a portion was returned to the state treasury.

COUNTY CONFERENCES

Fifty County Conferences were held in the following counties: Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton,* Genesee, Greene, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery,* Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Rensselaer, St. Lawrence, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren,† Washington,† Wayne, Wyoming and Yates.

The following invitation was issued:

MY DEAR SIR.—On (date, place and hall inserted), I will meet all those interested in the assignment of Farmers' Institutes, and other lines of agricultural work, in your county for the coming year. All requests for institutes and such work should be presented in person if possible; if not, by letter, as after the conference no other days will be assigned. No place should apply unless prepared to support the institute in every way. Last year we were able to place many meetings in localities that had not previously had them or where a long time had intervened since meetings were held. Some of these were the best held the past season. I desire to follow the same course this year and wherever meetings will be supported, place them in localities that have not heretofore had them. Places making application a year ago and not receiving an institute will have prior consideration this year.

All representatives should come prepared to give not only the name of the hall or other building where institute is to be held, but such information relative to the agriculture of the community that suitable themes may be selected for discussion. As heretofore, localities are expected to furnish a comfortable hall well heated and lighted. The Department pays all other expenses including advertising.

Very truly yours,

(Signed)

EDWARD VAN ALSTYNE,

Director of Farmers' Institutes.

This was sent to the officers of all agricultural associations in these counties, to the masters of pomona and subordinate granges, all correspondents of institutes for two previous years, the town supervisors and the district superintendents of schools. In addition notices were sent to clergymen, both Protestant and Catholic many of whom are intensely interested in the agricultural welfare of their congregations and render most efficient service in stimulating an interest in the meetings and other agricultural and rural work. Notices were also sent to the local papers, giving

* Joint conference.

† Joint conference.

time and place of the conference and inviting any interested to attend and meet the Director. This insures at least one invitation, through the supervisor, to every town in the county, many of which have no granges or other agricultural organizations. Naturally not all invited attend, but all interested have a like opportunity to do so, and none can complain that some "pull" is necessary to secure an institute or other form of work which the Department of Agriculture is doing. Usually the conferences are held at the county seat, if that is a point which can easily be reached from different points of the county, otherwise a town is selected which will better accommodate the people with least expenditure of time and money. Wherever there was a farm bureau the farm bureau manager was made the central figure. Usually the conference was held in his office.

In the majority of cases there was a good representation from the different parts of the county, many coming long distances. Where personal attendance was impossible many applied by letter. There are a few counties where the agriculture is at low ebb and where the attendance was small. These are more in need of help than the wide-awake ones and the conference with the few interested enabled the Director to meet their needs much better than could be done by correspondence. Many meetings and other lines of work have been arranged for through the supervisors, district superintendents and clergymen in places never before reached.

The number of days' work possible to be done with the funds appropriated and the times when institutes can be most advantageously held being ascertained, the meetings are apportioned to the different counties based on the number of farms. They vary from two days in the less populous or urban counties to seventeen in the large, strictly agricultural ones. How these days should be assigned, whether two or three at a central point or one at smaller places, is determined by the wishes of the local people after carefully considering together the geographical situation which would best serve the largest number, the needs of the community, the support which they had given or were likely to give the work, and their claims either because of such support given in the past or because they had not received work hitherto. While there were some places where a good attendance and lively interest always

has been assured, it sometimes seemed wise to pass that for a year in favor of a new or isolated place. Usually the county, towns or cities where there are many other things to attract are not as good institute points as smaller places or neighborhoods where people can easily get back and forth and where the institute is the chief or only attraction.

Frequently the demand was much greater than the number of days assigned and it was most difficult to decide which places to leave off. Only in rare instances has there been any inclination to find fault with the decision finally arrived at. Often applications have been withdrawn in order to favor a locality seemingly having a greater claim, the places withdrawing asking for first consideration a year hence. After going over the situation together people return satisfied even if disappointed. Some prefer a two-day session bi-annually rather than one each year; others take one day rather than none. It is easy to see how this system has naturally favored one-day meetings.

After the meetings were placed the correspondents were selected, a most important matter. This is much more satisfactorily done in this face to face way, for on the correspondent depends much of the success of an institute. No matter how well equipped the force sent out by the Director is, unless the local arrangements are well attended to and the people are brought out, a meeting will not be wholly a success.

The place where the meeting is to be held is given and the subjects most important to be discussed in the particular community are noted, in order that the Director may select the right force capable of treating them. Often it is not so much the particular line of agriculture followed which needs to be taken up as other lines of crops, stock or mutual endeavor which can be advantageously followed. In many cases an interest has been stimulated in alfalfa and fruit, horses and swine, cow testing associations, or cooperative effort, where nothing had previously been done along these lines. It was usually profitable to arrange a series of meetings where the needs were similar so located that the same workers could economically and easily serve them all. In addition, the character of the work as a whole was freely discussed, criticism of past work and workers was asked for and usually freely given

in a most kindly way. Suggestions were made which were helpful to both the communities and Director.

No part of the work is more arduous to the Director than this travel over the entire state. Often only one county could be visited in the day. Although the expense of holding these conferences, approximately \$500, is an important item, yet after the completion of the circuit, the Director is satisfied that in no other way could he come in such personal touch with the agriculture of the state and the needs of the agricultural sections — and even more vital, the men and women comprising the rural population — and that no expenditure of funds returns more to those interested.

NORMAL INSTITUTE

The Fifteenth Annual Normal Institute was held at the State College of Agriculture, Ithaca, on November 24 to 26, 1913, with the following program:

MONDAY

- 10:30 A. M. Opening — Acting Director Stocking.
10:45 A. M. Suggestions — Director van Alstyne.
11:00 A. M. Facts Relating to Drainage — Prof. Fippin.
2:00 P. M. Facts Relating to Lime — Dr. Van Slyke, Prof. Fippin.
3:00 P. M. Facts Relating to Commercial Fertilizers — Dr. Jordan.
4:00 P. M. Leguminous Plants — Prof. Stone, Mr. Minns.
7:30 P. M. The Department of Agriculture — Commissioner Huson.
The Institute Workers — Director van Alstyne.
Observations on European Agriculture — Dr. Jordan.

TUESDAY

- 9:00 A. M. Conference of conductors.
10:00 A. M. Facts Relating to Horticulture — Prof. Hedrick, Prof. Wilson.
11:00 A. M. Facts Relating to Insect Depredations — Prof. Parrott, Prof. Herrick, Dr. Felt.
1:30 P. M. Facts Relating to Plant Diseases — Prof. Reddick, Prof. Stewart.
2:30 P. M. Facts Relating to Poultry — Prof. Rice.
3:30 P. M. Cow Testing Work — Prof. Wing, Mr. Nicoll.
7:30 P. M. Summary of the Work of the Women's Conference — Mrs. Harrington.
Discussion.
Rural Sociology — Rev. Mr. Tator.
Influence of Music and Song — Mrs. Morgan.

WEDNESDAY

- 9:00 A. M. Facts Relating to the Dairy — Acting Director
Stocking, Mr. Smith, Dr. Breed.
- 10:00 A. M. Farm Bureau Work — Mr. Tenny.
- 11:00 A. M. Rural Uplift — Rev. Mr. Tator, Prof. Mann.

NOTE.—All the subjects, except those in the evenings, will be treated in Round Table Discussions.

TUESDAY

WOMEN'S CONFERENCE

(In Charge of Mrs. Harrington.)

- 10:00 A. M. Opening — Director van Alstyne.
- 10:10 A. M. Extension Work in Home Economics — Prof. Van Rensselaer.
- 10:30 A. M. Round Table — Led by Prof. Van Rensselaer.
- 11:00 A. M. Sanitary Improvements Without Money Outlay — Miss Knowlton.
- 11:20 A. M. Discussion.
- 11:30 A. M. Household Accounts Made Easy — Miss Fleming.
- 11:50 A. M. Discussion.
- 12:00 A. M. Recess.

Please prepare questions for the afternoon Question Box during noon recess.

- 1:30 P. M. The Family Dietary — Prof. Rose.
- 1:50 P. M. Question Box. Questions answered by members of the Home Economics Department Staff and others.
- 2:30 P. M. Clothing for the Farm Family — Miss Titsworth.
- 2:50 P. M. Discussion.
- 3:00 P. M. Music and Song — Mrs. Morgan.
- 4:00 P. M. Conference on Home Decoration, conducted by Mrs. Young and Miss Warner, in Fourth Floor Laboratory.

All the regular workers were present except William Hotaling, who was kept away by the death of his wife. The farm bureau men were also present in order that they might receive the same instruction as the institute workers to the end that all alike should teach the latest truths and that all might become acquainted. As

indicated in the program one period was devoted to the farm bureaus. The subjects selected were those considered to be of prime importance for the coming season. An entire day was occupied by the women workers, a resume of which is given in Part II of this report.

Abstracts of the discussions at the sessions follow. These were placed in the hands of all workers and farm bureau men in pamphlet form early in the season.

The evening topic of Mrs. Morgan was unique and most inspiring as was that of Rev. Charles S. Tator, and the hour devoted to discussion of rural life problems.

The Normal Institute like those that have preceded it was effective in bringing the workers into intimate relation with College and Experiment Station staffs and sending them into the field well equipped and united in opinion and effort as well as an increased respect for and loyalty to the work.

Summary of Proceedings of the Fifteenth Annual Normal Institute for New York State Workers

INSTRUCTION TO N. Y. FARMER'S INSTITUTE WORKERS

OPENING

DIRECTOR W. A. STOCKING: One of the large lines of agricultural work at the present time is the universal move to put what we already know of agriculture into the hands of the farmer in such shape that he can use it. In some places we call this extension work, and in some places Farmers' Institutes. It may be in the form of small popular leaflets to put into the hands of the people actually on the farms the information we already have. This it seems to me the natural result of the years of work that has been going on in the colleges and experiment stations where we have been collecting information in regard to agriculture. When the colleges of agriculture were founded, the professors knew very little if anything more than the ordinary man engaged in agriculture. Now, there is a large amount of information available and the big problem is to put that in such form that the man who is getting his living out of the land can make use of it.

We hear a great deal at the present time in regard to the cost of living and the need of increasing our agricultural crops, and I think that it certainly is true. One prominent man in the university said to me lately, "You fellows in the college of agriculture are not doing your duty; you are not putting the proper emphasis into the need of producing larger crops." I called his attention to the fact that it makes but little difference as to the amount of the crop produced in any one line so far as the cost to the consumer is concerned. Yet, it seems to me that he voices a pretty general opinion, that it is the amount of farm products we produce that is an important factor. We must recognize this. Especially must we realize that this is the case when we know that nearly all of our crops are consumed at home instead of our having a surplus for export. Statistics show that 91 per cent. of our wheat crop is used at home, leaving only 9 per cent. for export. The decrease in the amount of beef that is produced is very marked. There has been something like 30 per cent. decrease in the last six years. Very naturally the consumers combine these things, or associate these facts with the present cost of living in the cities, and I think that they are important. As workers among the farmers we ought to emphasize the importance of making two blades of grass grow where one grew before; or, as the boy put it, "making two quarts of milk flow where one flew before."

One man said in Washington last week that he would be sorry to see the yield of crops increase materially over this country without a corresponding effort to better the home conditions of the farmer and his family. The farmer must be trained to use the money he gets from his crops in order to give himself and his family better opportunities. We need in the country the best boys and girls that the farm produces right there in the country. We have been sending them to the cities for many years. The city still needs the best blood that comes from the country, but the country also needs some of that best blood. In doing this work, by whatever agency it may be carried on, it seems to me that we must not lose sight of the real purpose of the work. When we begin to organize things, we sometimes let the purpose of organization overshadow the importance of the work. We must

keep in mind that the welfare of the farmer and his family is the real things we are working for.

A large part of the effort that is made must be centered in the community. The closer we can keep the worker to the community, the greater will be our influence. Make the work of such a nature that the men in the community will feel that it is growing out of them and is not being dosed into them by some outside agency.

What the result will be from some of the newer efforts it seems to me will depend very largely on how successful we are in getting the people to realize that it is their work and not that someone else is coming in as an outside agency. The two things we must keep in mind in all of this work is: first, the fact that it must come close to the farmer and his family and that unless it does directly result in the bettering of farm conditions it is time lost; second, that with the present situation, with the large number of various lines of effort which are all working toward the same end, the question is one of all pulling together — team work, if you want to put it that way, or cooperation — and our efforts must all be toward the one purpose of reaching the people who are actually living from the farm land in the various parts of our state.

MR. VAN ALSTYNE: I propose to talk very informally to-night. I have not put myself on the program because I want to make myself conspicuous or fill up the time. I thought that there were some things I should say — some things by way of instruction — indicating a policy for which we must all work together.

The Commissioner has well said this work will continue and it will grow. It cannot do otherwise. It must grow or it will deteriorate. As you and I do our very best in the position where we are, we can make an impression on this state that is worth while.

I want to outline something of a policy and then I should like to take a little time and define what I consider some of the necessary attributes of a good institute worker.

I urge you to be on time. It is not always easy to begin a meeting just at the time scheduled, because farmers are busy and they have their chores to do, but it is a good plan to make it a policy to begin if you have six people present. I have worked to make the travelling easy and avoid early trains and late driv-

ing, but there are times when it will have to be done. To receive a report that the workers did not get to a meeting because they did not take an early train, does not show true interest.

The school men will not be with you this winter, which I regret exceedingly. The requests are coming in more and more for that work. I am sending out a letter to the district superintendents and to the teachers in the schools, saying that we will be glad to cooperate with them in holding conferences. If we can give them a little assistance, it is our duty to do so. At the National Meeting the week before last in Washington, one of the things many of the states were laying stress upon was work among the children. I do not quite see our way to organize any special work along that line, but I do believe in this way we can and have made a splendid beginning. If you bring a lot of children into the institute, you are not doing them justice unless you feed them. It is pretty hard to do that and do justice to the adults. If you meet the children in the schools, you can give them what they want about as long as they are able to take it. I hope that in every case you will work to this end, not only cooperate with but rather foster the work among the superintendents and the children.

Last winter I had sent out a little note of local conditions in the institute town. The Commissioner spoke of the fact that we are reaching out this year into many new towns and I shall have as before a little line of information sent you as to conditions in each of these towns. I have talked with many of the workers and most of them say that it has been very useful. In addition to the local condition, there are many facts which will be noted there that it is well for you to know.

I am sending letters to all the Granges in the state asking for their cooperation. I have gathered as I have been over the state the names of many clergymen, and I am sending them a special letter calling attention to the fact that our work and their work are one. We should appreciate the fact that the moral welfare of a community is as important as its financial welfare. Many of the ministers have vision and will appreciate this. I have sent them a communication calling attention to this thing and asking them to boom the institute and help it along. I hope that you

will go out of your way, if need be, to get in touch with the local clergyman. I have put the Pastor on the program many times to open the meeting with prayer.

Follow-up work. You will again be furnished with blanks, but in the eighteen counties where farm bureaus are established, the farm bureau men will work with you and you can turn the follow-up work over to them. In the counties where there are no bureaus, obtain the names of the men who want the work done and we will see that some one does it next year. That work has been exceedingly profitable. But let me say to you that so far as possible insist that the men who have the work done shall pay the traveling expenses. Not so much for saving money, although that is very important, but primarily because I think that a man who is not willing to drive to the railroad and get a man who is coming to give him advice, and feed him while he is there, is hardly worth going to help.

In every case magnify the farm bureau men and the farm bureau. These men are just now in the trial stage. They have to justify to the people their right to exist, and they have to overcome more or less opposition. With the exception of one or two, these men have not been long enough on the ground to get acquainted. I regard the farm bureau man in the county as the one who is going to keep me posted, and through me you, as to the needs of that county. I want to say to you farm bureau men, I am expecting much of you. You can do very much to help make the institutes a success.

The requisites of a good institute worker. First, the man must be a success at home. What do I mean by success? A man who has amassed a fortune? That is not necessary. It may be that a man is in debt; but he must be a man who has the respect of his friends and neighbors because of what he is and what he is trying to do. A man ought to be able to talk with the same degree of confidence to his neighbor that he can to a man one hundred miles away. He must have a *message*. I do not care how successful a man is; I do not care what formula he has for presenting a subject to an audience, if he has not a message he is a failure, and has no business on the institute program. The only worker who will ever make a success for any long period on

an institute platform is the man or woman, old or young, who has something they have done, or something that they believe and have worked out thoroughly — a message that they want to give to their fellow men. The man who has that is a success. A man must be clean, outwardly and inwardly. I want to make an emphasis on the former. I have seen men in the institutes who seemed to think that it was a sort of a matter of kinship to the soil if they were a little bit slack in their appearance. A man who goes out to represent the great state of New York owes it to his profession, owes it to the state, owes it to the institutes that he should be not expensively, not extravagantly, but that he should be neatly dressed. If the inner man is not clean, is not full of high ideals, that will taint and lower the message and lower the standard of the whole work. I am inclined to think that the institute men, not only in this state but as I have met them outside, have been of the highest moral character. You must be tactful. You have to be "wise as serpents and harmless as doves." You cannot go at people hammer and tongs, even if you think they need it.

A man must be simple. The message is most effective when it is put in simple language. Years ago we had a man talking on drainage and when he went to describe the earth that was thrown out of a ditch, he called it "the super-incumbent mass." I have known men who were full of knowledge, who had a message, who had all the above points, but whose matter was not properly put together. Sometimes they began at the middle and backed out. A subject should be thought out and presented in logical sequence, and I am afraid at the root of that defect, lies lack of preparation. It will pay every man to write his matter out. I never have had anything that clarified my own vision so much as attempting to write out in black and white what I had to say. If you have any doubt as to whether or not your matter is being presented logically, sit down and write it out, then read it and ask yourself, "Would this be clear to me if I knew little or nothing about it?"

An institute man is not expected to know everything; nor, is it necessary that he should tell all he knows the first time. Remember that you may want to come back and if you shoot off all your ammunition the first time, the next time some of it will be

stale. If you give over much that is new, some of it will not be true.

I want to adjure you again to keep the talks down to half an hour; forty-five minutes at the limit. The conductors should adhere to that standard, and when the half hour, or at the utmost forty-five minutes are up, bring the speaker down.

People want clear, concise statements. Do not attempt to say what you do not know, because someone will find it out and you will lose more ground than if you did not say anything. You can have a splendid message that fails of its effectiveness because it is put up in too somber metaphors. If the matter is presented in a conversational way, it will sink in a great deal deeper. That brings me up to the point of illustrations. I am very clear in my mind about this. If the audience is tired, a story will sometimes change the current or wake them up, and then they are ready to take the talk seriously. A story told for any other purpose than that or to illustrate a point, is ridiculous, and weakens a talk, always. The institute long ago passed out of the story telling period.

Have a few well defined points. Mr. Sandles of Ohio said the other day that he had instructed his workers to prepare an address with ten points in it. Ten points are too many, three will suffice.

If I ever am remembered at all in connection with this work, I want it to be not because the Farmers' Institute has stood for better cattle, better plants, better cared for fields, but because it has stood primarily for better men. I say to you as impressively as I can, make that after all the great underlying thing — that we shall leave an impression in the places where we go that shall make for better citizenship, better homes, and better men and women. That, as I see it, is one of the burning questions of today. We are sending, and must send continually, men and women from the countryside into the city; and the welfare of the city, the perpetuity of the city, the perpetuity of the state, and hence the perpetuity of our nation, depends on the character of the men we are sending out from these towns. That is your work. You have a part, an important part in bringing to those rural communities, those men and women in the country — some of them who owe no allegiance to the church or any institution — a vision of better things than crops and stock, and you can speak with a voice that

will have an effect. When a layman, a farmer, can stand up before his fellow farmers and plead for the school, the church and the home, I tell you it will penetrate many times where the word of no preacher will, because that is expected to be his business. If you can be instrumental in sending out a rural constituency that has high ideals, it will mean the welfare of our commonwealth and our country. Unless that is done, the time will come when this nation will go the way of the nations of the old world. God forbid! I do not believe it will.

I believe, men and women, that the Farmers' Institute has a work to do in this direction that they can do as no other agency can, and so as you go about this work I want you to sound the slogan of better homes, better schools and better churches, and do not be afraid to stand up and be counted for better religion and better morals.

You farm bureau men,—I wonder if you catch the vision? If I can give you just a bit of the vision without which men perish. If I could give you a vision that you in your sphere are preachers, ought to be preachers of righteousness as well as agriculture, you can preach that doctrine in your daily work better perhaps than the minister can in the sacred desk. I want to plead with you that you have a vision that you may have a part in this splendid work.

FACTS RELATING TO DRAINAGE

PROFESSOR E. O. FIPPIN

There is nearly as much land in New York State that needs drainage this year as last.

Circular No. 70 of the New York State Department of Agriculture contains in brief form facts relating to drainage.

Estimates made by the college at various times have been that from 30 to 75 per cent. of the land in the different counties of the state needs more or less drainage.

Land that needed no drainage thirty years ago may very seriously need it now. Continued tillage and more or less careless methods of handling the land, may remove the organic matter from the soil and more drainage is required.

If water remains in the soil 48 hours or longer, within the root period (3 feet), the productive capacity of the land is reduced

and it needs drainage. The idea would be to have a soil that is thoroughly well drained three feet all the year around. To determine the need of drainage, dig holes in the soil two or three feet deep and see if they fill with water and remain filled.

An uneven color of the subsoil is generally an indication of defective drainage, because it means defective ventilation which is a result of an excess of water.

The drainage of land by frequent dead-furrows is expensive because of the land wasted, the low efficiency of the drainage afforded, and the inconvenience of farming such land.

Valuable statistical data relating to drainage is given in the back of Cornell Bulletin No. 254, "Drainage in New York"; also in Vol. 1, "Proceedings of the N. Y. State Drainage Association, for the years 1910-11."

Ontario Department of Agriculture Bulletin No. 174 gives figures relating to benefits derived from drainage that are very good.

Unless there is a spring tapped by the system, causing the water to run in the drain throughout the year, so the plant roots seek the drains for water, there will probably be no trouble from alfalfa or tree roots entering tile drains.

As a general rule nothing smaller than a three-inch tile should be used; never anything less on flat land. It may be permissible on good hillsides to use a two or two and one-half inch tile.

METHODS OF CONSTRUCTION

The most economical machine for the small farmer who is limited in means and is doing a small amount of drainage is a two-horse ditching plow, costing from \$8 to \$12.

The Cyclone ditcher is a practical and economical machine on the heavier grades of soil relatively free from stone. A ditch was dug in Jefferson county with this machine at a cost of 10 cents per rod — depth of ditch from two and one-half to three feet.

DEPTH OF DITCHING

Tile should be from two and one-half to three feet deep in ordinary soil. In very heavy clay it may be permissible or advisable to put them in a little more shallow — say eighteen inches. This

may apply where an impervious subsoil runs near the surface. There is not much use in going deep into the hardpan.

It is a risky thing to put stones over tile. Water is liable to wash out the tile. Gravel is superior to stones.

Would generally recommend the use of dense, vitrified, hard-burned tile. If this kind of tile is used, they may be put within the frost line without danger from freezing.

Lime in tile should always be avoided.

GRADE

The grade may be very small, as low as 1 inch to 100 feet, and yet the tile will work. The smaller the grade, the greater the accuracy required in construction of the drain.

CEMENT TILE

A good grade of cement tile can be made,—perhaps better than poor clay tile; but we cannot make a cement tile as good as the best clay tile and there is always a considerable element of risk due to the fact that each tile is made individually by workmen, and the failure of one may destroy the line. If a man has the different materials, it may pay to make cement tile. There is relatively more economy in cement tile in the large sizes than in the small.

FORMULA FOR CEMENT TILE

Best results have been obtained from a mixture of one part cement to three parts sand. The richer the mixture, and the more moist it can be handled, the better will be the tile.

Water from acid soils and especially soils rich in organic matter will injure cement tile. The avidity of the soil for lime would tend to take it from the concrete mixture. If farmers are making their own tile and making it economically, it should not be discouraged.

DYNAMITE

The use of dynamite is an effective method of drainage only where it breaks through an impervious subsoil to a pervious layer below. On the great majority of land in New York State, dynamite is not an effective agent.

FACTS RELATING TO LIME

DR. L. L. VAN SLYKE

Certain crops may be grown successfully on what are known as acid soils.

Cranberry and blueberry crops can be grown successfully on such soils. Among our common berry crops which tolerate a certain amount of acidity are the strawberry, blackberry and raspberry, including both red and black varieties.

The potato crop is tolerant of a certain amount of soil acidity. An alkaline condition tends to produce potato scab.

Among the grain crops more or less tolerant of soil acidity are rye, millet, buckwheat, oats and corn. An application of lime to these crops, however, may be beneficial in liberating certain plant foods.

Most of the grasses are very sensitive to acid but there is one grass not at all sensitive, and that is the red top.

Among the root crops, carrots are not so sensitive to an acid condition as to prevent a good crop, or the common turnip, although rutabaga is to a degree.

We have in particular been teaching the sensitiveness of the leguminous crops to soil acidity. Fortunately, there are some leguminous crops that can be grown on soils more or less acid. Among these are the cow pea and hairy vetch. Crimson clover and soy beans are also capable of showing good growth on soils somewhat acid. Alsike clover is apparently one of the clovers more or less sensitive to acidity. Timothy is very sensitive to acid.

There is no objection to the use of lime on corn land and there might be a decided advantage to the crop by the application of lime to such land, due to its effect in liberating plant food, and on the mechanical condition of the soil. This is probably true of all the grains.

A moderate application of lime two or three years previous to the clover crop, will have a marked effect in improving that crop and yet it would not have the effect of making conditions favorable for the development of scab in the potato crop.

It is safe to continue to advise farmers that where it is as cheap

or cheaper and more convenient to use the quicklime, use it under the precautions that are ordinarily given, i. e. smaller amounts.

Quicklime must be used with greater precaution on light sandy soils than on heavier soils. It is conceivable that on light soils containing a considerable amount of ammonia forming materials, quicklime in excessive amounts might cause loss of such ammonia forming compounds, but on the heavier soils there would be no danger.

Where it seems necessary to apply quicklime and manure at very nearly the same time, it is equally necessary that the two should be mixed with the soil. It is preferable not to apply both lime and manure at the same time. It is better to apply them as far apart as possible, convenient to the system of cropping.

It is not good policy to apply ground limestone in drop behind cows, particularly in warm weather. It does not possess any special absorptive qualities. There would be a very serious loss in applying slaked lime in the gutters.

MAGNESIUM LIMESTONE

There is little reason to believe that the application of the amount of magnesium we use will do any harm. The amount is comparatively small. If farmers have been using magnesium limestone with good results, let them continue to do so.

FACTS RELATING TO LIME

PROFESSOR E. O. FIPPIN

Size.—Definition of 10-mesh screen lime: Lime which will pass through opening 1/10 inch in diameter.

Lime carbonate which is coarser than 1/50 inch is of very low value, and lime carbonate which is coarser than 1/20 inch is practically useless so far as any effect on the soil is concerned within a period of five years. In the course of a rotation, material 1/50 inch may be as effective as finer. From 1/20 inch to 1/50 inch material is one-half as available as material that will pass a finer screen. Any material coarser than 1/20 inch should be disregarded.

A very good small screen for screening lime is made by the Central Scientific Company, Chicago, Ill.

Prof. Fippin's test for lime or sweetening material in soils: Hydrochloric or muriatic acid diluted one to five times. Pour quantity of acid upon soil to be tested. If there is evidence of any general effervescence, lime is unnecessary.

Solvay lime is guaranteed to carry at least 65 per cent. oxide and is very fine. Rock cut stone is about 50 per cent. oxide, but some of it is coarse.

FACTS RELATING TO COMMERCIAL FERTILIZERS

DR. W. H. JORDAN

Experiments made at the station do not show that soil needs as to fertility can be measured by the composition of the crop.

So far as the fineness of phosphoric rock is concerned, we should insist on the experimental evidence we have, that it be very fine material.

The availability of the undissolved rock is partially a question of the type of plant with which it is to be used. It has been found that there is a very great difference in the way in which different classes of plants will take hold of the ground undissolved rock. Rape, cabbage and that class of plants have uniformly made pretty nearly as good use of the undissolved rock as they have of the dissolved rock, whereas timothy and barley have failed to make very much use of it in the length of time that the plant has had to utilize the material at hand.

It has not been proved that the efficiency of the raw phosphatic rock is increased by mixing it with manure.

Where quick and immediate growth is needed with vegetables and quickly growing crops, it is safe to advise the use of acid phosphate as against the raw rock.

A large number of experiments have been made at the State Experiment Station to determine the relation of various methods of soil analysis to measurements of fertility. Taking the soils of New York State today, we have no method in the laboratory of telling a man what fertilizers to use. We can make a determination of everything in a soil, but we cannot tell what a plant can use.

SULPHUR

I am a bit skeptical as to the place sulphur occupies in our commercial fertilizers.

A Station bulletin regarding analyzing soils will be received from the printer very soon. Each farm bureau man and institute worker should be supplied with a copy of same.

POTASH

Farmers will do well to consider whether they are not buying more potash than they need.

EXPERIMENTS

When results of their own experiments are given to you by farmers, determine whether their conclusions are logical. No experiments are logical except when the conditions are all the same outside of the one thing you are testing.

HOME MIXING OF FERTILIZERS

Dried blood, nitrate of soda, sulphate or muriate of potash, and acid phosphate put together at home will make a fertilizer that is just as efficient in every way as one made by a fertilizer manufacturer containing the same proportion of ingredients. If the farmer buys good materials and mixes them, it is just as efficient as if the fertilizer manufacturer does it. With low-grade materials, a fertilizer manufacturer may be able to obtain better results, if he uses the "wet" method of manufacture. Nitrate of soda should be used as needed and not in too large quantities at one time. Fall applications of nitrate of soda are not advisable.

LEGUMINOUS PLANTS

PROFESSOR J. L. STONE

First of all, regarding the feeding of our domestic animals, the forage crops as grown in New York State are strong in carbohydrates but weak in protein. It is also true that the feeds we buy to balance our home grown rations, those that are rich in protein, are high-priced, while those which are not rich in pro-

tein are not so high-priced. At the present time there is less difference than formerly. If the farmer could balance his ration from material grown on the farm, he would save his pocketbook a great task. Leguminous plants give us a more nearly balanced ration.

Nitrogen is the element of fertility that is first of all likely to become deficient. It is the element that produces results, when it is needed, in a more marked way than almost any other plant food.

The growing of legumes affects the feeding problem by reducing the feed bills to a considerable extent. It affects the fertilizer problem by making it unnecessary to purchase so much high-priced nitrogen.

I am satisfied that there is no one problem that affects the agricultural condition of the state as does that of maintaining the organic matter in the soil. The organic matter in the soil has a wonderful influence upon its physical character as well as upon the amount of plant food the soil can supply to the growing crop. The maintenance of an abundant amount of organic matter in the soil is perhaps the biggest problem the farmer is up against at the present day. I am satisfied that to reduce it to its simplest problem, the question of getting good crops out of the land today is the question of getting into the soil a sufficient amount of organic matter.

The three factors then that make this problem of the growth of legumes important are: The protein supply in our stock foods, the nitrogen supply as a part of the plant food of the soil, and the organic matter of the soil as a means of maintaining the physical condition of the soil and also as a help toward the nitrogen supply of the soil.

The ordinary way of maintaining fertility is by the application of stable manure. If we had enough stable manure to meet all these demands we might snap our fingers at almost everything else. Give a man all the stable manure he cares to use and success attends his efforts. However, an adequate supply of stable manure is not within reach and I do not believe it can be brought within reach. The keeping of animals up to the point where we can dispose of animal products profitably will not produce manure

enough to meet the situation. It therefore comes to this, that very soon we will be studying seriously this problem, "How shall we maintain the productivity of our soil independent of animal husbandry?" It is out of the range of possibility to produce enough manure to meet the needs of the soils of the United States. We must look to other things. The leguminous plants are of great interest to us then, because they combine the organic matter in the soil with the supply of nitrogen, which is perhaps an equally important matter.

There are certain crops under certain conditions which will serve our purpose better than legumes. There are certain crops that are cheaper than legumes. There has been a great deal of wrong advice given to sow clover seed where clover will not grow. Very evidently the proper advice would be to start with a plant that will grow and will do some business. When the farmer has arrived at the point where he can apply a legume to increase the fertility of his farm, he should do so because it will be increasing the actual available supply of nitrogen at the same time it is increasing the organic matter in the soil.

Rhode Island Experiment Station Bulletin No. 147 gives summary showing amount of accumulation of nitrogen in the soil by the growing of leguminous plants.

Institute workers are also referred to Cornell Experiment Station Bulletin No. 294, "A Heretofore Unnoted Benefit from the Growth of Legumes."

Timothy grown with alfalfa contains a greater per cent. of protein than timothy grown alone. A legume crop is very good company for non-legumes to keep. It makes them better and makes the total crop larger.

ALFALFA GROWING

It is believed that there are many soils in the state of New York physically well adapted to the growing of alfalfa, but situated too far north. There are certain places in the state where a hardy variety will be needed. Experiments are being made to find such a variety.

Should advise not spending much time with the cow pea or crimson clover in New York State.

LEGUMINOUS PLANTS

E. R. MINNS

SOY BEANS

Soy beans can be grown wherever we can grow good corn. They can be grown on sour soil, as has been stated. The soy bean will withstand a wet period in the spring better than corn; it will withstand drought as well as corn.

There is no uniformity of results in growing soy beans with corn. No one will be pleased with results obtained if the soil will not grow good corn. A good crop of beans is assured if grown alone, but if planted with corn the result is uncertain.

The medium green variety is as yet the best.

Where soy beans have not been grown before it would be advisable to inoculate the beans, using pure cultures mixed with the seed. There will be plenty of nodules from pure culture inoculation, but the nodules are near the stalk and not on the roots as when the soil is inoculated. The percentage of nitrogen in inoculated soy beans is about three per cent. higher than in those not inoculated. Cultures for inoculation may be obtained from the U. S. Department of Agriculture for the asking.

The seed beans are very valuable and if a sufficient yield of ripe beans can be obtained it might pay to grow them for seed.

Advise buying seed early in the season.

Advise early planting. Soy beans will stand as much and probably more frost than corn. Would plant as soon as corn. An early frost does not necessarily spoil the seed crop, as they can stand for a month and mature after such frost.

HAIRY VETCH

Pure hairy vetch is scarce and the price is high. Advise farmers to grow their own seed. Spring vetch seed may be distinguished from hairy vetch seed as there is quite a little difference in the shape. The hairy vetch seed is small and nearly round. The seed of the spring vetch will vary more in size, most of it being larger than the seed of the hairy vetch and somewhat flatter.

Vetch grows better where the ground has been limed than where it has not been limed. The longer it is grown on the same soil the better it grows.

Vetch is a biennial plant. As a cover crop it will outgrow clover, where it has a good chance. It is a spiny leafed plant and does not take as much water out of the soil as does clover.

In northern New York would advise sowing winter vetch in oats in the spring, leaving the vetch to come on after the oats are cut.

SWEET CLOVER

Sweet clover may be grown, if the lime supply is sufficient, where there is a lack of humus. It should not be grown where it is possible to grow alfalfa. It needs lime about as much as alfalfa.

FACTS RELATING TO HORTICULTURE

PROFESSOR U. P. HEDRICK

THE PROGRESS OF FRUIT GROWING

The speaker does not know what attitude entomologists and pathologists are taking in regard to the wormy and scabby apples of 1913. From a horticulturist's point of view there would have been much less infested and infected fruit had the work of spraying been done better and had the equipment been better. The use of poor nozzles is one of the chief causes of concern in spraying equipment.

Apples are poorly colored in western New York this year. Unfortunately we cannot tell fruit growers how to improve the color and not reduce the crop.

Plowing orchards in the fall is more and more practiced and with orchard fruits and on clay soils may well be recommended, not only because of the greater convenience of doing the work in the fall, but because it is beneficial to the soil.

A careful scrutiny of the fertilizer experiments of the country, especially of those in our own state, shows that lime is a relatively unimportant factor in the treatment of orchard soils. It becomes more and more apparent that plants differ greatly in their demands for lime. Most legumes thrive only in soil con-

taining much lime. There are gradations all the way between the two extremes in the likes and dislikes of plants for lime. Our common bush, tree and vine plants seem to be among those that need but little lime. It is certain that the small fruits at least are often injured by applications of lime. On the other hand, it may be necessary to use lime for the leguminous cover crops now grown in all well-managed orchards in this state.

Nineteen hundred and thirteen has brought forth nothing strikingly new as to fertilizers for fruits. Orchards on good farm land require comparatively little fertilizing if tillage is practiced and if cover crops are plowed under. In sodded orchards nitrate of soda is most markedly beneficial. Fruit growers may be advised to experiment carefully for a few years before entering on a regular, long-continued plan of fertilization. A hit-and-miss application of any fertilizer is gambling, pure and simple.

A cover crop which turns back less than two or three tons of vegetable matter is hardly worth the seed planted. Cover crops to be of value must be used annually and must be so planted and cared for as to turn back a considerable amount of vegetable matter. A cover crop of a few short, sparse plants per square foot, is not worth the trouble. Twenty pounds of winter vetch and from a half-bushel to a bushel of oats or barley is probably the best cover crop.

Orchard heaters have proved their value in parts of the West, but the first cost and cost of maintenance in our less intensive orcharding and the inadequacy to protect trees in stresses of cold weather in the East will probably prevent the use of orchard heaters in New York. The attention of those who grow fruits for home use and do not take the trouble to spray, may well be called to varieties of nearly all fruits that are measurably free from serious insect or fungous pests. Lists of fruit little or not at all attacked by specific diseases or insects, can be obtained from experiment stations.

Fruit growers everywhere are overcrowding plantations. The greater productiveness of single plants and of outside rows teach the value of planting thinly.

Several new fruits can be recommended to fruit growers. The Delicious apple in New York seems to be better as the bearing

trees grow older. Opalescent deserves greater notice from fruit growers as a beautiful, well flavored, early winter apple. King David is as handsome and well flavored as Jonathan, and runs a little larger in size. It may prove profitable in parts of New York. Arp Beauty is the earliest good yellow peach. Of the score or more of peaches advertised to follow Elberta, Frances is the best on our grounds. Miss Lola fills a gap in the peach procession that makes it valuable in this state. It follows Greensboro and precedes Champion, being as good if not a little better than either. Middleburg can be recommended for home orchards as a very late plum of good quality, almost immune to black knot and brown rot. The Schmidt cherry is becoming the leading black sweet cherry for markets in many parts of the state. The Eclipse is the only new grape in a collection of over 400 that we can unqualifiedly recommend fruit growers to test. The June raspberry, a Station seedling sent out several years ago, is equal and often superior to the best of the old varieties and ripens on our Station grounds, as no other raspberry does, in June. Plum Farmer makes the best showing of any black raspberry on the Station ground. The Perfection and Diploma currants are both well worth growing in the currant raising sections of the state. The Poorman gooseberry is a most promising new gooseberry for commercial plantations. Prolific, a Station seedling strawberry, and Chesapeake, are the most promising of the new strawberries.

All reports emphasize the superiority of the Mazzard over the Mahaleb as a stock for cherries. The latter dwarfs the tree and makes it short-lived and less productive. The tree is more easily grown on the Mahaleb, and only insistent demands on the part of the fruit grower will make nurserymen grow cherries on the proper stock—the Mazzard.

For several years it has been said that sour cherries were being overplanted. The demand for uncanned sour cherries in the large markets seems to be increasing greatly and over-production is not now so imminent as we have thought.

Great progress is being made in canning and evaporating horticultural products whereby fruits so preserved are cheaper and more attractive in appearance and quality. This helps to put off the evil day of over-production, which we all fear.

It is of interest to note that about seventy varieties of European grapes have borne good crops on the Station grounds three years in succession. These three years cover the coldest winter, the hottest summer and the driest summer in a quarter century. We may yet be able to compete with California in growing *Vinifera* grapes.

Talk continues about the value of pedigreed fruit trees, but there are as yet no facts to substantiate the theories of those who advocate pedigreed trees. Nothing is more certain than that the characters of fruits are much modified by soil, climate and care, and characters so modified are not handed down unchanged through seeds, buds or cions. In particular, size of fruit, productiveness of plant, flavor and all that goes to make the fruit valuable, are chiefly modified by man-given conditions. Until a nurseryman shows that a particular character which he supposes gives extra value to his pedigreed plant passes unchanged through several tree generations, a tree unadorned with a pedigree is quite as valuable as one advertised as having the most illustrious descent. Much more to the point is the business pedigree of the nurseryman who advertises pedigreed stock.

Many varieties of fruits are not adapted to the wide range of conditions. For this reason new varieties should be tested in a small way in any region before they can be recommended for commercial plantings.

There is a great deal of talk about varieties of fruits wearing out or running out. Fruit growers can be reassured that varieties of fruits do not run out. Under abnormal treatment, especially neglect, they may seem to run out; but under good care, so far as is now known, varieties have no limit of duration.

Apple trees in sod produce better colored apples than those tilled. The crop will be reduced, however. At the present time apples of good color will bring no better prices than those not so well colored. In sodded orchards nitrate of soda is most beneficial.

If a man can so manage his spring work that he can let his cover crop grow until about the middle of May, with cover crop like vetch, it is far better; otherwise, it is better to plow under in the early spring.

In fall plowing, plow toward the trees. Also, for young trees mound up the earth eight or ten inches around them late in the fall and remove this mounding early in the spring.

List of fruits free from ordinary plant diseases and insect pests may be had from the Geneva Experiment Station. Institute workers should have such lists and recommend varieties for home planting where it is not desired to spray such fruit.

Nearly all new fruits mentioned are described in Geneva Bulletin No. 364, "New or Noteworthy Fruits." Institute workers should have this bulletin.

No change in list of varieties of apples recommended last year, unless you add Delicious and King David as kinds that might be tried as commercial varieties.

For northern New York, about Oswego, would recommend Bartlett and Seckel pears as suitable varieties for planting.

FACTS RELATING TO HORTICULTURE

PROFESSOR C. S. WILSON

SULZER BILL

Fruit growers should know more about the provisions of the Sulzer Law. The important provision is a division of the first grade fruit according to different size. Growers everywhere agree as to the importance of sizing, and, while they are not certain that the sizes specified are the best, they feel that the law should be given a fair trial.

Two questions will probably arise in the discussions of this subject. First, how is the work of sizing done; and second, is the increase in the value of fruit sufficient to warrant the extra labor.

It is probable that mechanical graders will make possible the work of sizing. The machines are being tried, and in many cases they have proved successful. While the grader is in the experimental stage, and while it has been unsatisfactory in the hands of some growers, the prevailing opinion is that the mechanical grader is going to be successful. One grower says that "seven men using a machine were able to grade from fifty to sixty bar-

rels per hour." One point in favor of the grader seems to be that efficient grading is made possible by unskilled men of fair intelligence. The experience of the growers is that they get greater net returns for fruit thus graded, the largest size bringing from fifty cents to one dollar more per barrel.

USE OF DYNAMITE IN PLANTING TREES

Much has been said by those interested in promoting the use of dynamite in planting trees, but knowledge based on carefully recorded experiences is very limited. Experiments have been started in Missouri and New Jersey and the results observed are for one to two years only. This much seems to be true:

First, peaches make a considerably greater top growth the first season when the holes have been made with dynamite. This additional growth does not seem to be so marked by the end of the second season.

Second, peaches planted with dynamite make a much larger root growth and the roots are more widely distributed and deeper in the soil by the end of the first season.

Third, apple trees in some cases have made a slightly greater top growth during the first season, though these differences do not seem to be observed in all cases. Apple trees have a larger root growth with the roots more widely distributed and deeper in the soil by the end of the first season when dynamite is used in planting.

Whether or not this deep root system would be of benefit to the tree after the soil is settled back to its normal compactness is not known in the case of either the apple or the peach.

So far as experience indicates, the use of dynamite does not reduce the percentage of trees that die in planting a young orchard. The added cost of planting with dynamite amounts to five cents a tree or more.

With careless planting the dangers in the use of dynamite are:

First, leaving large open places in the soil under the tree in such a way that the tree will sink down deep into the soil as it settles.

Second, dynamiting when the subsoil is too wet, thus puddling

the soil and possibly leaving water pockets in the case of a compact clay soil.

Until more knowledge is available on this subject our advice to fruit men should be to plant with the shovel in the old fashioned way.

DIVERSIFIED FARMING

Attention may well be called at this time to the danger of overspecialization in the growing of fruit. There are a few farms in New York State on which fruit may be grown profitably to the practical exclusion of other farm crops. There are many more farms on which fruit should be only one of several crops upon which the farmer depends for his income. The Department of Farm Management has demonstrated, as a result of its surveys made of farms in Tompkins and Livingston counties, that those men who are carrying on a diversified system of farming are, as a rule, making the most money. This is so because of a better distribution of labor throughout the year, a lower cost per man and horse hours, and an elimination to a great extent of entire crop failures due to unfavorable climatic conditions such as a man who specializes in the growing of one crop must now and then experience. A diversified system of farming will not produce such large and spectacular profits as may be realized from the growing of one crop in occasional years, but returns are more steady and reliable and the risks involved are considerably less.

FACTS RELATING TO INSECT DEPREDACTIONS

PROFESSOR P. J. PARROTT

NEW SULPHUR PREPARATIONS

There are on the market a number of new spraying mixtures which derive their insecticidal properties from various polysulphides, as sodium, potassium and barium. All of these compounds possess both insecticidal and fungicidal values, but they do not have equally wide ranges of usefulness. To determine their distinct merits and fields of employment further inquiry is desirable. On the basis of efficiency against the San José scale, safeness to foliage and cost of material, the lime-sulphur solution best meets the requirements of orchardists.

SPRAYING FOR SCALE AND DISTRIBUTION OF PARASITES IN NEW YORK

During the past two seasons there has been considerable spotting of apples by the San José scale. As a result there are complaints of ineffectiveness of the lime-sulphur mixture. This spray has its limitations, but in spite of its defects it still stands as the most satisfactory spraying mixture for the orchardist in the treatment of this pest. Fruit growers experiencing difficulty in combating the scale satisfactorily should apply the mixture in more liberal amounts and exercise more care in spraying. A common cause for failure is too great a dilution of the stock mixture, which should be diluted according to its density. The proper strength is one gallon of the concentrate testing 32-40° B. to eight or nine gallons of water, while weaker preparations should be diluted with proportionally less amounts of water. Some growers would find it profitable to spray their apple orchards late in the fall as well as in the early spring. During the past season tests with various spraying mixtures, including lime-sulphur and sodium sulphur, showed conclusively that an emulsion of 15 per cent. oil is the most satisfactory treatment for summer spraying to control the scale.

It is common knowledge that large numbers of injurious insects are annually destroyed by those which are predaceous upon them or which live parasitically within them. The San José scale is not an exception, for it is subject to the attacks of at least eight species of true parasites and a dozen or more predaceous ladybird beetles. Reports of the beneficial work of the enemies of this pest have raised the question of the capacities of the parasites to keep the scale in check and the extent to which an orchardist can safely utilize their services to simplify the problem of spraying. While parasites serve an important function, they have only in rare instances proven sufficiently effective to render remedial measures unnecessary. They are generally capricious in their behavior, if not more so than the insect on which they subsist. The more efficient parasites of the San José scale are present in all of the important fruit-growing sections of New York, but so far there has been no indication that fruit-growers can safely dispense with the usual spraying with lime-sulphur to control this pest.

THE CABBAGE APHIS

The cabbage aphis is a serious pest to late cabbage, and during the past season it caused severe losses throughout all sections where this crop is grown on a large scale. There has developed a great need for practical and detailed information as to the most satisfactory means of protecting cabbage from losses by this insect.

In six tests by the Geneva Station the cost of spraying an acre of cabbage, including labor and cost of materials, was as follows: (1) \$2.72; (2) \$4.10; (3) \$3.50; (4) \$3.25; (5) \$1.95; (6) \$4.70. In these tests the amounts of spray applied to an acre were as follows: (1) 100 gals.; (2) 188 gals.; (3) 91 gals.; (4) 96 gals.; (5) 89 gals.; (6) 175 gals.

Two treatments of Black Leaf 40, $\frac{3}{4}$ of a pint to 100 gallons of water and 2 pounds of soap, applied with hand-directed nozzles, afforded efficient protection to cabbage from this insect.

Spraying for Cabbage Aphis

Name and Locality	No. Acres	Kind of Outfit	Total Cost of Spraying per acre	Cost of Spraying per acre	No. gals. Spray per acre
T. D. Whitney, Flint, N. Y.	5	Orchard sprayer..	\$2 72	\$1 00	100 gals.
T. Scoon, Geneva, N. Y.	9	Orchard sprayer..	4 10	2 48	88 gals.
W. N. Black, Flint, N. Y.	1½	Knapsack	3 50	1 23	91 gals.
W. N. Black, Flint, N. Y.	12½	Orchard sprayer..	3 25	1 25	96 gals.
Alfred Lewis, Geneva, N. Y.	84	Field sprayer	1 95	1 12	89 gals.
Experiment Station, Geneva, N. Y.	1	Field sprayer	4 70	2 30	175 gals.

Tabulated data

Plat 1, Rows 1 and 10-20 sprayed 2 times with "set" nozzles.
 Average yield per row..... 1,219 lbs.
 Average yield per acre..... 4.26 tons

Plat 2, Rows, 2-5 sprayed 2 times, nozzles hand-directed.
 Average yield per row..... 1,607 lbs.
 Average yield per acre..... 5.62 tons
 Average gain per row..... 388 lbs.
 Average gain per acre over Plat 1..... 2,716 lbs.
 At \$19 per ton, gain per acre.....\$25.80

Plat 3, Rows 6-9 sprayed 3 times, nozzles hand-directed.

Average yield per row.....	2,047 lbs.
Average yield per acre.....	7.16 tons
Average gain per row.....	828 lbs.
Average gain per acre over Plat 1.....	5,796 lbs.
At \$19 per ton, gain per acre.....	\$55.06
Cost of spraying: Plat 1, \$3.90; plat 2, \$9.40; plat 3, \$14.10.	

THE CABBAGE MAGGOT

Carbolic acid emulsion prevents the hatching of the cabbage-maggot eggs and is also destructive to the younger stages of the maggots. The treatment may cause injury to young seedlings and cannot safely be used for the treatment of plants recently set in the field.

Tar pads have, in the station tests, afforded very efficient protection to early cabbage. Plants protected by tar pads will, during seasons favorable for the insect, grow faster and consequently "head" sooner for the early market.

In an experiment on the Baker farm, Geneva, during 1913, the yields from treated plats were at the rate of 723 heads per 1,000 plants; from untreated plats 193 heads per 1,000 plants set in the field. The net profit per 1,000 plants was \$41 over the untreated cabbage. Material and labor for applying tar pads will approximate \$1.40 per 1,000 plants.

COST OF SPRAYING FOR APPLE PLANT LICE

1st Spray. When bud tips were green.

Age of trees	Treatment	Cost per tree
35	Black Leaf 40—L. S.—Lead.....	34 to 36 cents
12-35	Black Leaf 40—L. S.—Lead.....	21 cents
5-25	Fish-oil soap 1-5.....	8 cents
12-75	Kerosene Emulsion 1-8.....	11½ cents

2d Spray.

35-year-old trees, Black Leaf 40—L. S.—Lead..	25 to 28 cents
25-year-old trees, Black Leaf 40—L. S.—Lead..	35 cents
35-year-old trees, Black Leaf 40—L. S.—Lead..	36 cents

PLANT LICE ON APPLE TREES

There is a growing tendency for orchardists to spray for the plant lice that attack apple trees. Conclusive data is still lacking as to the conditions under which spraying can be most profitably conducted. As a general recommendation fruit-growers should spray as soon as the insects appear in injurious numbers and before an appreciable amount of the foliage is curled. The most satisfactory preparation from the standpoint of safety to leaf tissues and effectiveness against the insects is tobacco extract, 40 per cent. nicotine, (Black Leaf 40) using $\frac{3}{4}$ of a pint to one hundred gallons of water to which are added from three to five pounds of dissolved soap. The tobacco extract may be used with lime-sulphur, but if this is done the soap should be omitted from the combination. Kerosene emulsion and fish-oil soap at usual strengths are employed by some growers to control these insects, but these insecticides should not be added to the lime-sulphur solution. The eggs of these insects are resistant to spraying mixtures which may be safely applied to fruit trees.

THE CLOVER-ROOT CURCULIO AS AN ALFALFA PEST

During the past season this insect (*Sitones hispidutus* Fab.) has been very common on alfalfa and has done a great deal of damage in young plantings in Seneca and Ontario counties. It is a familiar species in Europe, but only in recent years has it become an important pest in the United States. Clover seems to be its favorite host, but fears have been expressed that it will prove a great menace to alfalfa. The adult is a small, black, hard-bodied beetle from one-eighth to one-fifth of an inch in length. The insect hibernates in the beetle stage and appears with the first warm days of early spring, when the females soon begin to deposit their eggs. The pest attacks both roots and leaves. Owing to limited experience with the species there is little to suggest in the way of remedies and preventives.

FACTS RELATING TO INSECT DEPREDAATION

PROFESSOR G. W. HERRICK

FRUIT TREE LEAF ROLLER

This is a comparatively new fruit tree leaf pest. The larvae hatch in the spring and spin webs. They get into the blossoms of the fruit and cut off the blossom stems or web them together, and later when the fruit sets, the young larvae begin gnawing into the side of the fruit. We have carried out a series of experiments with spraying but were unable to control the insect satisfactorily. It was found that miscible oils, 1 gallon to 15 gallons of water, would prevent a large per cent. of the eggs from hatching.

APPLE TREE TENT CATERPILLAR

Pick off egg masses and destroy them. Where spraying is thoroughly done there is no trouble from the apple tree tent caterpillar. They breed upon the wild cherry tree, and hedges containing that sort of trees should be cut down and destroyed.

CANKER WORMS

The canker worm is very abundant in certain counties. They can be controlled by spraying early with arsenate of lead, just before the blossoms open, and one spraying just as the buds are beginning to show green. If particularly abundant, would recommend plowing the orchard in which they occur, if possible during the early summer. This will break up the pupae cases in the ground. With this plowing and with the application of the poison spray there is no question but that the canker worm can be controlled.

FACTS RELATING TO INSECT DEPREDAATION

DR. E. P. FELT

The experimental work with the codling moth has been continued during the last two seasons by examinations in orchards where the spraying was thorough, and the outcome clearly shows that under normal crop conditions 95 to 97 per cent. of worm-free apples may be expected from one thorough and timely spraying. It is impor-

tant to emphasize the great value of the treatment within a week or ten days after the dropping of the blossoms, since this is fully twice as effective as one, two or three weeks later. Efficiency in spraying rather than the number of applications is the important thing.

San José scale parasites have appeared abundantly in a number of widely separated Hudson Valley localities. In some places they have evidently been important factors in reducing the numbers of the scale. In one instance 85 per cent. of the scales were killed and one sample showed 185 holes on a piece of a branch only one inch long and $5/16$ of an inch in diameter. It should be remembered that the San José scale parasite rarely becomes efficient before the trees have been seriously injured.

A new corn pest, which we have denominated the "lined corn borer," destroyed several fields of corn in Ulster county, working in much the same manner as the familiar stalk borer. Early fall plowing is one of the best preventives.

The serious outbreak of white grubs last year was followed by the discovery of a large white maggot in Rensselaer county. As this maggot destroyed many of the white grubs, it is an important natural enemy. The parent is probably one of our robber flies.

Our position regarding miscible oils has not been materially modified. There is danger of injury following their use upon dormant fruit trees.

Tent caterpillars, both forest and apple tree, are likely to be injurious in individual orchards two seasons in succession and destructive in a section for three or four years. The probability of damage another season may be easily approximated by looking for the conspicuous, easily recognized egg belts.

FACTS RELATING TO PLANT DISEASES

PROFESSOR DONALD REDDICK

BALDWIN SPOT OR BITTER PIT

The bitter pit, or Baldwin Spot, as it is commonly known among our apple growers, has been prevalent again this year. As reported last year, the Australian Government is investigating this disease and the experts have a large fund at their disposal for con-

tinuing the investigations. In a letter from Professor McAlpine, who is in direct charge of the work, it is stated that the cause of the trouble has been determined experimentally. It may be stated that the disease is of physiological nature. No practical suggestions as to methods of control appear in the letter, but as the cause of the trouble is determined it is to be hoped that further work will bring about some satisfactory means of prevention.

APPLE SCAB

Apple scab did no damage to fruit in 1911 or 1912. However, during the autumn rains of 1912 the scab fungus spread abundantly on apple foliage and this insured abundance of infected leaves to carry the fungus over the winter. The result is that the scab has been more or less prevalent in all the apple counties. Even in sprayed orchards the amount of scab has been found as high as 20 to 30 per cent. The occurrence of scab in sprayed orchards may be attributed to two things: (1) less careful applications have been made, owing to the fact that the disease has not been prevalent for two years. (2) The application of spray ordinarily recommended for three weeks after the calyx spray was omitted by the majority of growers. In former years this application has not proved of particular benefit for controlling scab; but this year it was exceedingly important, owing to the occurrence of prolonged periods of rainy, foggy weather during the last ten days of May.

Bulletin No. 335 from the Cornell Experiment Station has just been published and contains an extensive account of the life habits of the apple scab fungus and of methods of control.

COMPARATIVE APPLE DUSTING AND SPRAYING EXPERIMENTS

With the introduction of lime-sulphur solution as a fungicide instead of bordeaux mixture, the question at once arose as to what ingredients of the solution are the essential fungicides. From the fact that the solution quickly decomposes on sprayed foliage and from tests made, it appears that the essential agent is finely divided sulphur. With this in mind it was thought possible to apply a very finely ground sulphur in the dry state. In some experiments performed, a finely ground sulphur containing 20 per cent. of dry powdered arsenate of lead was blown on the trees in comparison

with spraying trees with lime-sulphur solution to which arsenate of lead had been added. The results of the experiments show that insects were better controlled with the dry mixture than with the liquid. The amount of scab was somewhat greater on the dusted block of trees, in one orchard running 30 per cent. scabby apples as compared with 20 per cent. scabby apples on trees which were sprayed with lime-sulphur solution. The results of the experiments are so encouraging that they are to be continued on a more extensive scale another year.

The cost of dusting trees was somewhat greater in these experiments than for spraying them, but the amount of time saved and the possibility of making applications over large areas at critical times more than off-set the increased expense. It is also possible that the quantity of material used may be greatly reduced in future experimentation, thus bringing the cost of the dry mixture to approximately that of the liquid spray.

CABBAGE CLUB ROOT

This disease is very well known in practically all parts of the state where cabbage is grown. It appears, however, that many growers are not aware of the fact that the disease occurs on practically all cruciferous plants, including the cruciferous weeds such as the mustards, etc. The organism causing the disease persists in the soil for a long time and cruciferous crops ought not to be grown in rotation. One grower, attempting to get something out of a field where his cabbage crop was destroyed by club root, seeded it to turnips not realizing that they are also subject to the same disease. The results were disastrous.

It is well known that a liberal application of lime (2 to 5 tons per acre) to the soil is very effective in preventing this disease. It should be borne in mind, however, that lime should be applied to the soil at least 18 months before the time to plant the cabbage. An application of lime immediately preceding planting is of very slight value. The lime referred to above is stone or quicklime. If ground limestone is used, proportionately larger quantities must be applied.

END ROT OF TOMATOES

This is distinctly a dry weather disease and has been exceedingly prevalent the past year. It seems quite certain that the disease as

it occurs in New York State is not caused by parasitic organisms but is due to an interruption of the normal water supply. There is no known method of preventing the disease, but it has been suggested by some that more careful attention to the preparation of soil and more careful cultivation to conserve moisture will aid in preventing the trouble.

TOMATO LEAF BLIGHT

This disease is caused by a fungous parasite and is apparently becoming more troublesome throughout the state. It is known that the fungus winters on fallen leaves and that the leaves nearest the ground are first infested in the spring. In wet seasons the disease may become so destructive by mid-season as to completely cut off the yield.

No practical methods of control have been employed by New York growers other than to change the tomato field from year to year. The occurrence of this disease makes it practically impossible to grow tomatoes twice in succession on the same field. The disease may be controlled by spraying but our methods of culture make this practically impossible. If the disease continues to be destructive it will be necessary to use culture methods adaptable to the practice of spraying. In home gardens the use of bordeaux mixture will prove effective.

POTATO ROT

Attention is called to the fact that potato rot has not been reported from any section of the state although the loss sustained by Maine growers has run as high as 40 to 50 per cent. in some instances. The desirability of planting home-grown seed needs to be emphasized this year.

FACTS RELATING TO PLANT DISEASES

PROFESSOR F. C. STEWART

THE DISINFECTION OF SEED POTATOES

The disinfection of seed potatoes by means of formaldehyde gas is not to be recommended except in cases in which it is impracticable to use either of the liquid treatments, because: (1) it cannot

be depended on to kill all of the scab germs; (2) it does not kill all of the Rhizoctonia; (3) it may injure the tubers; (4) it is too complex. Both its safety and efficiency depend very largely upon the quantity of potatoes per cubic foot of space in the disinfection chamber, and somewhat, also, upon the moisture content of the air. With less than three pounds per cubic foot severe injury occurs invariably; with ten or more pounds there is no injury; while with intermediate quantities varying degrees of injury result. Only the quantity of ten pounds (167 bushels per 1,000 cubic feet, is known to be both safe and efficient, though it is probable that quantities of 5 to 10 pounds may be treated without material injury, particularly if the tubers have not begun to sprout. Sprouted tubers are much more liable to injury than unsprouted ones. The injury appears in the form of sunken, dead, brown areas surrounding the lenticels and eyes. The standard corrosive sublimate treatment for scab kills also Rhizoctonia, but the formalin treatment does not kill Rhizoctonia. Therefore, when it is desired to treat potatoes for both Rhizoctonia and scab, the corrosive sublimate treatment should be used.

PERSISTENCE OF THE POTATO BLIGHT FUNGUS

In New York, the fungus of potato late blight (*Phytophthora infestans*) does not live over winter in the soil, except, possibly, in those rare cases in which the ground does not freeze deeply enough to kill the tubers. Therefore, so far as the late blight and rot are concerned, there is no risk in planting potatoes where blight and rot prevailed the previous year. However, it really does not matter much whether the fungus does or does not persist in the soil. In any case, blight and rot can be controlled by proper spraying and, in New York at least, the necessity of spraying cannot be avoided by any method of crop rotation or by planting disease-free seed.

LIME-SULPHUR VS. BORDEAUX MIXTURE FOR SPRAYING POTATOES

Experiments made in three successive seasons show that lime-sulphur is harmful rather than beneficial to potatoes. In 1913

five thorough sprayings with bordeaux increased the yield at the rate of 31.5 bushels per acre, while the same number of sprayings with lime-sulphur decreased the yield by 22.3 bushels per acre. Both the gain for the bordeaux and the loss for lime-sulphur were much smaller than in previous years.

THE QUARANTINE ON EUROPEAN POTATOES

I am informed that considerable pressure is being brought to bear on the Secretary of Agriculture and the Federal Horticultural Board to raise the quarantine on European potatoes. In my judgment it would be unwise to raise the quarantine. That the potato wart disease is a dangerous one there is no doubt. It has not yet appeared in this country and we cannot afford to take any chances on its being introduced.

THE RUST ON CURRANTS AND WHITE PINE TREES

Further outbreaks of the currant rust (*Cronartium ribicola*) in 1911 and 1912 made it necessary for the State Department of Agriculture to consider placing a quarantine on currants and white pines at Geneva. Until the spring of 1913, the disease had been found at Geneva on currants only. This led us to suspect that, contrary to the accepted view, the fungus may over-winter on currants, thereby making it possible for it to perpetuate itself thereon year after year without the intervention of pines. With the assistance of five other plant pathologists we have tested this point experimentally. The results of the experiments seem to prove that our suspicion was unfounded. The fungus cannot over-winter on currant. Hence, it is unnecessary to quarantine currants for this disease. It is sufficient to quarantine the pines, and that has been done.

STANDARD CORROSIVE SUBLIMATE TREATMENT FOR SCAB IN SEED POTATOES

Two ounces corrosive sublimate to fifteen gallons of water. Soak the seed one and one-half hours.

FACTS RELATING TO PLANT DISEASES

F. M. BLODGETT

THE CONTROL OF HOP MILDEW

There are two things of primary importance:

1. The sanitation or burning of the leaves in the fall. This, of course, is a common practice in hop yards — to burn the vines immediately after picking the hops. However, when the mildew is far advanced they do not pick the hops, but leave them standing on the poles. In the case of a young yard, it is not customary to cut the vines and burn them the first year.

It is important that the vines be cut late in the fall the first year and that they be burned. It is also particularly important to cut and burn the vines in the case of bad mildew infestation.

2. The principal means of controlling the disease besides burning of the leaves and vines, is by the use of sulphur. There are two methods of making sulphur fine enough for use by spraying machines — one by buying it fine and the other by distilling it in a large retort so it condenses from the vapor. There is little difference in results from the use of the two kinds of sulphur. For the present it seems best to recommend the flowers of sulphur.

It is difficult to give any directions as to time of application. In general, it has been found necessary to first apply sulphur soon after the vines are up the poles before blossoming time. The second time, when the hops are in full bloom. This second application is probably the most important because it is at this time that the hops themselves are growing the most rapidly and are therefore most likely to be attacked by this disease. In fact, the cluster variety of hops frequently is not attacked at all until this period of the year. It is then usually necessary to make one or two applications between this time and picking time.

At each application about fifty pounds of sulphur should be used per acre. This is applied as a dry powder and we have never been able to see any better results from its application while the leaves were wet; in fact, if one may judge by the appearance of the sulphur on the leaves as applied at these two times, the distribution seems to be better if the sulphur is applied to the dry leaves.

Formerly, the use of lime with the sulphur was advised. This we have found greatly reduces the efficiency of the sulphur.

Advise starting to spray when the disease first appears on the vines.

COW TESTING WORK

PROFESSOR H. H. WING

A cow testing association is a good thing for a community, a county or a state, but primarily for the individual. I do not believe we are going to get rid of the poor cows unless we bring it home to the individual man in every case.

There is no question but what ultimately the improvement in the breeding of dairy cattle is going to be along pure-bred lines. We all know that the important factor in this work has been in the matter of authentic records. The cow testing work brings up certain questions as to the authentication of records. The Cornell University Experiment Station was asked to take supervision of the records for Holstein cattle, and other breeds have fallen in. We have been the clearing house for that work, with the exception of the Jersey breed, for the last twenty years.

The question has arisen with respect to the attitude with regard to the authentication of cows for advanced registry records that belong to cow testing associations. I made a statement to the effect that I would certify the records of testers for cow testing associations so long as they were satisfactory. It was assumed, or it has come about, that it was necessary for me to give my assent to the appointment of a man to a cow testing association whose records would be approved for purposes of advanced registry. I would like to make this definitely clear. I will assume no responsibility whatever with respect to the appointment of any man to a cow testing association along this line, but I will accept the records of the associations I authenticate for, for any man who is regularly appointed to a regular cow testing association. In other words, I put the appointment of a competent tester in the hands of the cow testing association alone. I will accept the records of such a tester in the case of any of the pure bred cows of the four breeds, providing he follows my directions, reserving the right to stop at any time, or to send another man. The four breeds I authenticate for are the Holstein, Guernsey, Ayrshire and Jersey.

COW TESTING WORK

A. J. NICOLL

We have twenty-eight cow testing associations with about fourteen thousand cows in this state. I cannot see how any man can go into a community where they have had a cow testing association in operation any length of time, and talk with the men and see the actual results over what they have previously done, and not feel that it is a good thing not only for the individual but for the community. Not only are the members of the association interested in the individual cow, but the neighbors and everyone in the community are talking milk per cow and butter fat per cow, and the interest is wholesome outside of the association.

We have organized thirty-two associations, four of which have been discontinued. For every one of these four a good reason for discontinuing can be seen. It was either on account of inefficiency of the tester, or lack of funds with which to pay the man, both of which could have been overcome by a little supervision.

The farmer *can* make the records himself, but we know it is a fact that he will not. The next best thing is for him to hire somebody to do it.

It is questionable whether the average farmer can afford to give up his time to do this work when a tester can be employed to do it at a cost to him of \$2 per month. Also, many farmers are not qualified to do the work.

FORESTRY WORK

PROFESSOR F. B. MOODY

In connection with my work in the Forestry Department I have been assigned the extension work, and it is our desire to cooperate with you gentlemen as much as we possibly can. Since you are out over the state in various sections, it seems to me that it would be a very good plan to make some sort of an arrangement by which I could get in touch with you as to the needs in various sections of the state. I realize full well that

there are certain localities where lectures or talks of this kind would not be of any great interest on account of highly developed agricultural regions, and on the other hand, there are sections where the forestry question is an important one and where the people in the community are desirous of some information along this line.

Besides this work we are making personal examinations of farm woodlots and small timber tracts for those who desire such help and assistance. This work is done at the expense of the owner, and the lecture work on forestry will be carried on through demonstrations, if it is possible to do that, as well as illustrated lectures or talks. I think the plan of the college is to be reimbursed one-half the traveling expenses.

If we can be of any assistance to you, or if you know of any club or organization that is interested in this matter, we would appreciate it very much if you will be kind enough to advise us.

The State Conservation Commission, Albany, and the state College of Forestry at Syracuse University, are prepared to extend the same service.

FARM BUREAU WORK

L. S. TENNY

I should like to make it very clear that no one, I think, believes that the farm bureaus will revolutionize farming. I believe that they will play their part in the reorganization of our farm lands, but by no means are they going to do everything. The farm bureau trespasses in no way, shape or manner upon any kind of extension work we have existing at the present time. They are different in their character of work; they are different in their organization and management; they will not compete with anything we now have; they supplement and unify in a very marked degree all the other agencies we now have at work.

While I have a great deal of enthusiasm and a great deal of interest in the farm bureau work, I should like to urge you constantly to put on the brake in regard to this work. Let us go slow. I said, when I took over the work of the farm bureaus, that I would very much like to see the ten original counties we

had working at that time continue for about a year before any more were organized. We will now have practically twice that many counties organized by the first of the year. Do not worry about the fact that the farm bureau propaganda will not advance fast enough. I think one of the most unfortunate things we could have would be to have 40 or 50 farm bureaus established within the next twelve months.

I am very glad that the organization of these bureaus has meant going down into the pockets of the people. In this connection I would like to say, however, that the more I get into the work and the more I see of it, the more I am convinced that when we have worked out our organization, when we have determined the character of the work we are to do, it should be established very much on the same principle as our public schools are now established. I should like to see this work largely financed as far as the salary of the agent and expenses of the bureau, largely supported through taxation, but this taxation I think will originate within the county. No county will receive a farm bureau until an appropriation is made. In my mind, probably automatically with the appropriation from a board of supervisors, there will be state money available, and automatically when state money is available, there will be Federal money available; but the first step will be with the local people themselves. If the time ever comes when the State Department of Agriculture or the Federal Department of Agriculture has money to finance a bureau without local support, in my mind it will be a disastrous day for the farm bureau work.

The word "extension" is not a good term. I have tried to keep it out of the farm bureau work. Why? Because extension means that some force back is extending something. That is not at all correct of the farm bureau work. The locality or territory employing a farm bureau man should be responsible for the work done. I know of no other so-called extension work built on just the same line, and there is where we are different, in spirit at least, from most of the other means of getting agricultural education back of the farmer. I hope that the institute workers will emphasize this fact.

Do not exploit the farm bureau too much. Unless the subject is brought up, present the matter in just a few general statements. In counties where we have farm bureaus working, emphasize the fact that the success or failure of these bureaus does not rest with the State Department of Agriculture, that it does not rest anywhere outside of that county.

We cannot select a farm bureau man and put him in a county. We do reserve the right of approval of a man.

The two difficulties we hear most frequently mentioned are: "Where are you going to get the men?" and, "What man would want the job if he has to answer every question in agriculture that will be asked in that town or county?" These are absolutely the two smallest difficulties we have to contend with. We do not have to select 20 or 30 farm bureau men in any one day, and at no time in the development of the farm bureau movement in New York State has the problem of the man been a very serious one. As to the other one, we make it very clear that we do not expect the county agent to answer every agricultural question. If you wanted to devote your whole time to answering petty questions, you could do it. The development of the work depends largely on these men getting the broad view of what needs to be done.

FACTS RELATING TO THE DAIRY

G. A. SMITH

MILKING MACHINES

The success of the results of a milking machine depends on the farmer. The machine will milk cows and milk them well if properly handled. Cows milked one year with the machine and the alternate year by hand, showed practically no difference in results.

When the man starts a machine the first thing he must do is to manipulate the udder and start the milk. If he straps the cups on without manipulation, he will fail. A man must be so familiar with the machine that if for any reason it stops milking, he can detect this by the sound and be there to manipulate the udder and get the machine started again. When the milking

machine has finished its work he must be on hand to manipulate the udder and get the last of the milk.

It has been shown that it is possible with the machine to produce milk having fully as low bacterial count as by hand milking.

Should recommend the milking machine in that it will milk cows; that it is a success in the hands of a competent man. It will probably be a success financially. If a man has to hire help for other farm operations who may just as well be used to milk the cows, it will probably not be a help to him financially.

Average time required to milk a cow by hand, weigh and take care of the milk, etc., 7 minutes.

Average time required to milk a cow with machine, weigh and take care of the milk, etc., 4 minutes.

Doubtful if it is profitable to use a machine for less than 15 cows.

The teat cups are rinsed in cold water, then in hot salsoda water, then in hot water and then placed in a 10 per cent. solution of brine. The machine is taken apart and thoroughly washed once a week.

The milking machine will not milk so good as the best hand milker, but it will milk better than the average hand milker that you can hire.

Geneva Experiment Station has published a bulletin on results obtained from the use of the milking machine. This bulletin is available for distribution.

DAIRYING

DR. R. S. BREED

Cleanliness is next to godliness in dairy matters. Bacteria get into the milk from three sources: In the milk as it comes from the udder; on dust and dirt particles falling into the milk; from the utensils which are not sterilized.

On the average it has been found that milk as drawn from the udder contains 428 bacteria per cc. These bacteria on the whole probably play a very small part in the further changes which take place in the milk.

Work done on milk pails at the Geneva Station showed that

the germ content of the milk as it was present in the pail could be reduced to about one-half by the use of the small-mouth milk pail. It was not found that the clipping of the hairs about the flank, udder and adjoining parts of the cow had any marked effect in reducing the germ content. Plastering and otherwise renovating the interior of the stable was likewise found to have no measurable effect in the number of bacteria in the milk. Cleaning with the vacuum cleaner was not found to have a greater effect in reducing the germ content of the milk than cleaning by hand. Protecting the milking pails from dust after they had been sterilized by the use of steam was found to have a measurable effect.

Steam sterilization of utensils is best, and the best substitute after that is good old-fashioned cleanliness.

It is an exceedingly difficult matter to get the average farmer to take the precautions necessary to keep the germ content down, when making use of the milking machine.

RURAL UPLIFT

REVEREND C. S. TATOR AND PROFESSOR A. R. MANN

We must not expect the country church and the country minister to do everything. The church is simply a factor in the community. Advise the coordination of all institutions.

New York State College of Agriculture Extension Circular No. 1, "A Plan for a Rural Community and Center" by Professor Mann, recommended for use of institute workers.

Would advise a community council composed of the school board, ministers and leaders in various other organizations, as master of the grange. The district to be covered by such a community council should be decided by that community; it might be a school district or an incorporated village.

The Wisconsin Experiment Station has a bulletin on the making of community surveys.

THE HOME AS AN INSTITUTION IN THIS RURAL IMPROVEMENT

The Farmers' Institute lecturer and the farm bureau manager who can bring into the home the desire for better reading, and can

follow that up with the possibility of better books, is doing a good work. The question of rural improvement is to make it possible to have these things in the home, where it is not now possible to have them.

A book on rural improvement by Dr. Warren H. Wilson, "Evolution of the Community," is recommended for institute workers.

Promote things of general interest in the community; that the church and school shall have sufficient financial support to do their work; that there shall be good buildings, good equipment and a good teacher in the school.

INSTITUTE WORK

Without question, so long as this bureau shall exist the holding of institutes will be the chief factor about which everything else revolves. These then properly occupy much space in this report, not only as a record of the work done and of those who do it, but also from year to year are recorded specimens of lectures given indicating the character of the work and with the added desire to supply needed and important information by their publication. It has not been the purpose of the Director to introduce new or startling features. He is an evolutionist and therefore believes in eliminating that which changed conditions have made of little worth or useless, and in building on or adding to as present day requirements and knowledge make necessary. This course insures a steady, healthy development which has always been characteristic of New York State institutes. Effort has been made to reduce the time given to lectures and increase that for discussion. To further this, question sheets were prepared, sample of which is here given:

The following questions will be discussed at your institute. Study them, bring them with you and call for the ones you are interested in.

COMMERCIAL FERTILIZERS

J. G. CURTIS, *Farmers' Institute Lecturer*

1. What is a fertilizer?
2. What is a *complete* fertilizer?
3. How does a complete fertilizer differ from a phosphate?
4. How can we tell whether a field needs fertilizers?
5. How can we tell whether an application of fertilizers has been profitable?
6. How are complete fertilizers manufactured?
7. What is meant by the "home mixing" of fertilizers?
8. What is meant by the term "availability" in relation to fertilizers?
9. What is meant by the "fixation" of fertilizers?
10. Is there any danger of hurting the soil by the use of fertilizers?

Nitrogen

11. What is nitrogen and how does it differ from ammonia?
12. Name several of the most common carriers of nitrogen that are used as fertilizers?
13. How is a shortage in the supply of available nitrogen usually indicated by the plant?
14. What is the difference between organic forms of nitrogen and ammonia salts?
15. In what form do plants take up their nitrogen from the soil?
16. In what form is nitrogen most frequently lost from the soil?
17. How is the nitrogen in organic forms rendered available in the soil?

18. Name some of the mistakes frequently made in the application of nitrogen.
19. Under what conditions is it advisable to apply nitrogen to muck soils?
20. Why is nitrogen the most costly element in fertilizers?

Phosphorus

21. Name some of the most common carriers of phosphorus used as fertilizers?
22. What is the difference between "water soluble" and "reverted" phosphoric acid?
23. What is the difference between "insoluble" and "available" phosphoric acid?
24. What is acid phosphate and how is it manufactured?
25. What is Thomas slag and how is it made?
26. What is bone black and how is it made?
27. Is acid phosphate made from animal bones more valuable than that made from phosphate rock?
28. Explain the difference between raw bone, steamed bone, and bone flour.
29. What is the difference between South Carolina, Florida and Tennessee phosphates?
30. Is there any danger of souring the soil by the use of acid phosphate?

Potassium

31. On what two types of soils is available potassium usually deficient, and why?
32. Name some of the most common carriers of potassium used as fertilizers.
33. Is the potassium in wood ashes in an available form?
34. Why is sulphate of potash better than muriate of potash for some crops?
35. What is kainit and how does it differ from sulphate and muriate?

Purchase of fertilizers

36. How is the commercial value of a fertilizer determined?
37. Does the New York State law protect us in the purchase of fertilizers?
38. Why are mixed goods sold on "time", while the various fertilizer chemicals are usually sold for cash?
39. What is a "filler" and why is it used?
40. Do mixed fertilizers deteriorate in value if kept over from one season to another?
41. Explain the average analysis on a fertilizer bag.
42. Is a high-grade fertilizer always a high-priced fertilizer?
43. What is the chief advantage of "home mixing"?
44. What equipment is necessary for the "home mixing" of fertilizers?
45. Where can fertilizer materials be purchased?

Application of fertilizer

46. Will an analysis of the soil determine its fertilizer requirements?
47. Should fertilizers be sown broadcast?
48. Will it pay to top dress timothy meadows?
49. Should fertilizers and stable manure be used together?
50. Should fertilizers and lime be used together?

The following subjects — Soil and Fertilization, Commercial Fertilizers, Dairying, Cow Testing Associations, Breeding and Raising Horses, Swine, Poultry, Orchard Management, Strawberries, Currants and Gooseberries, Raspberries, Blackberries and Dewberries, The Farm Garden, and Home Topics — were taken up in this way often with no formal address. With a few exceptions this was most acceptable to the people. The questions were

formulated to cover all phases of the topic and being numbered, one had only to call for the number of the question in which he was most interested. In this way the speaker was sure to be speaking on a point in which at least one of his hearers was interested.

As always the question box was an attractive and important feature in nearly all of the meetings. Fully one-fourth of the time of the different sessions was occupied either with the question box direct or by discussion after the delivery of the addresses.

Abstracts of the subject matter contained in the lectures were again distributed at the close of the sessions. Two samples of these follow:

POTATO CULTURE

D. P. WITTER, *Farmers' Institute Lecturer*

The potato is essentially a cool weather plant. It will do well on a variety of soils, but the heavy clays are usually cooler than the gravelly or sandy soils, and other things being equal, the heavy soils are to be preferred.

A good clover sod is the best foundation for a potato crop. The ground should be plowed in the fall and the sods have time to decay, so that the heat generated by the rotting sods may pass off before the seed is planted. If this is done the result will be a cool, moist soil with plenty of food ready for the plant. If the fall is late and dry enough so blight is not prevalent, spring plowing and late planting will do very well, but in many sections early fall plowing and early planting are to be preferred. Whichever method is adopted the land should be harrowed repeatedly for three or four weeks before planting. This will fine the earth, destroy weeds and conserve moisture, all of which are very necessary.

Stable manure is a good form of plant food for the potato, but when used should be put on the ground long enough before planting to become thoroughly rotted and cooled. Commercial fertilizers are well adapted to potatoes if there is sufficient organic matter in the soil, since they do not tend to warm the soil, and if of the right materials, are readily available. Large quantities of nitrogen are not desirable. An application of acid phosphate, and in some cases potash, will prove economical. Lime should not be applied to the soil for some time before planting potatoes.

Great care should be given to the selection of the seed. Seed selected from high producing hills only, at time of digging, will often give an increased yield of fifty bushels or more to the acre over the yield from bin-selected seed of the same size.

A rotation of crops is generally desirable, yet as far as we know at present the blight seed or spore does not live over winter except on the seed, and there would be no infestation unless diseased potatoes were left in the ground all winter.

If it is necessary to plant potatoes from blighted fields it is very important that they be planted deep and that the planting be done early and the seed kept cool. If the blight spores are in the potato over winter they are located just under the skin. They will remain harmless so long as the temperature of the potato is below about 60 degrees; therefore if the potato is kept cool and planted early, it will sprout and become rooted before the seed rots. If the potatoes are planted in June and the furrow opened some time before the seed is dropped, the soil has had an opportunity to become thoroughly warmed, often causing the seed to decay before sprouting, and many missing hills is the result. If the farmer is to plant blighted seed it is much safer to plant before the soil has become warm.

For the same reason, if the blight is discovered on a field of potatoes it is better not to dig them until the potatoes and soil have become thoroughly cooled off. If dug when it is warm, the spores are scattered over the potatoes from pulling the vines, and the crop is very likely to be lost.

Potatoes affected with the *Fusarium* blight or dry rot never should be planted. The disease remains in the seed and may be retained in the soil for several years. It may be detected on cutting off the stem end of the potato, by a dark streak in the vascular tissue about one-fourth inch under the skin. In the growing plant the leaves begin to turn lighter green, the edges will turn in or rosette, and wilting of the leaves will follow. The disease attacks the plant through the roots, therefore cannot be controlled by spraying. Potatoes affected with this disease should be destroyed and not put back on the land.

The first cultivation of the land should be deep, but after that, give shallow cultivation until midsummer or later.

The late blight and rot of potatoes may be almost entirely prevented by thorough spraying with bordeaux mixture. The spraying should begin about July first and continue every ten days or two weeks, spraying before rains, if possible, until the tops have died — or late in September.

FEEDING FOR EGG PRODUCTION

R. P. TRASK, *Farmers' Institute Lecturer*

When we demand an average production of 160 to 180 eggs per year from a flock of hens we are expecting each individual to produce six times her own weight in eggs each year. This hen is not only producing food but also fulfilling the function of reproduction almost every day in the year.

To do this it is essential that the feeding of the flock should be reduced to a science and that the poultryman be thoroughly familiar with food values and the balancing of rations. There is no one best method of feeding hens to produce eggs, but there are a few fundamental principles that must be followed no matter what method is used.

Hens must have congenial surroundings to respond readily to scientific methods of feeding; in other words, they must be comfortably housed, happy and contented. Many do not appreciate the importance of feeding a well-balanced ration. A properly balanced ration should contain about one part of protein to four and six-tenths of carbohydrates and there should also be an approximate proportion of two parts of grain to one of ground feed each day. This proportion will vary according to the egg production. During the months of March, April and May hens should be fed nearly as much ground feed as grain. In October and November they will eat but little of the mash.

It is quite generally acknowledged that the best method of feeding hens is to give a scratch grain in the litter just before sunrise and again an hour before sunset. Make the morning feed very light and scatter it well in the litter, but feed all they will eat in the afternoon, in order that the fowls' digestive organs will continue active the greater part of the night.

To a certain extent the hen should be allowed to balance her own ration by having a dry mash available at all times in self-feeding hoppers. If the hens fail to eat enough dry mash the grain feed can be reduced, and if they appear to be eating too much mash the hoppers can be kept closed during the first few hours of the day.

Corn and wheat form the basis of all poultry feeds and a good combination is 300 pounds of cracked corn, 200 pounds of wheat and 2 bushels of oats in summer, with an extra 100 of cracked corn or 100 of buckwheat in winter. A good dry mash would consist of 400 pounds of corn meal, 300 of wheat middlings, 200 of wheat bran, 100 of oil meal and 300 of meat scraps which should contain 55 to 60 per cent. protein.

Plenty of succulent green food should be available every day, such as sprouted oats, cabbage, mangle beats or green clover. Dry clover hay is good during the winter but will not take the place of a succulent food.

Plenty of grit, oyster shells, charcoal and cracked bone should be available

at all times. Pure water is essential and the man who has running water in his poultry yard is very fortunate.

Hens kept active by proper feeding in the litter can never become too fat and there are more hens who fail to lay from lack of feed than from over feeding.

More time than ever before was given to women's work. With few exceptions a woman lecturer attended each institute, a period of the institute proper — usually in the evening — being allotted to subjects pertaining to the home, alike interesting to the men and women attending. Three hundred and thirty-nine such lectures were given. One hundred and twenty-six special women's sessions were held, women alone attending. This phase of the work will continue to receive an increased measure of attention.

State-wide emphasis was laid on leguminous crops both for soil renovation and forage in 91 lectures. Farm management was treated 166 times. Cow testing associations were explained and advocated wherever practical, 23 special lectures being given on this subject. The importance of farmers raising more horses was presented in 105 lectures. The value of swine and economical ways of handling them was taken up 40 times. Sheep, which formerly demanded an important place in New York institute programs, were only discussed 6 times. It would seem that sheep might profitably be a more important factor on our New York State farms. Dairy topics were presented 309 times. The subject of breeding and raising calves was treated 46 times, the belief being that at present more emphasis needs to be put on this than on feeding or other lines of dairying.

The use of lime was another of the subjects that had state-wide attention. This was discussed separately 40 times, in addition to being taken up with "Soil Fertility". Soil fertility had a place on 284 programs. Most often it was taken up from the broad standpoint of humus, tillage, drainage, etc., rather than the narrow one of commercial manures.

Drainage, which a few years ago had to be forced on most audiences, was as last year one of the subjects most often called for, it being especially discussed 27 times, in addition to being treated as above under the general topic of soil fertility.

Horticulture has demanded an increased measure of attention, not only in the sections of the state where this is a leading indus-

try, but even where little commercial fruit growing is carried on this subject was repeatedly asked for. Forty periods were devoted to tree fruits, 19 to small fruits, 44 to spraying, and 156 to the broad theme of horticulture and entomological subjects.

In many counties the subject of potatoes is of vital interest. This was treated 76 times. Several requests for this topic had to be denied because of inability to secure a speaker qualified to handle the subject.

In certain sections beans and cabbage are important crops. The former was specially treated 9 times, the latter 4. The farm garden has had a place on 72 programs. The following list of desirable vegetables, etc., and instructive matter relating to gardens was distributed at these lectures and at as many other places as possible.

THE FARM GARDEN

R. P. TRASK and JAY GELDER, *Farmers' Institute Lecturers*

It is surprising how many otherwise enterprising and progressive farmers either neglect altogether or make only a feeble attempt to provide their own tables with fruit and vegetables from their gardens.

A garden properly laid out should be much longer than it is wide with all rows perfectly straight and thirty inches or three feet apart to give ample room for cultivation by horse power. It should be conveniently located because the housewife must visit it frequently and her time is valuable.

Vegetables grow best in rich loam soil, which should be well drained and easily worked. Poorly drained soil dries out slowly in the spring causing a delay in planting early vegetables.

Thorough cultivation is the secret of a successful garden, which means not only a larger quantity but also a far superior quality in all its productions. The garden should be fall plowed, and every few years a new plot should be laid out and a good clover sod turned under to assist in draining the land and to provide humus and nitrogen for the vegetables. Fall plowing opens up the soil to a great depth and permits nature's agencies to work throughout the winter pulverizing the soil and making plant food more available. It also disturbs and destroys many injurious insects by exposing them to the frost and birds.

Fall plowing is not sufficient. The land should be plowed again in the spring as early as the soil can be worked to good advantage and then the surface should be made as fine as possible by the unstinted use of a fine-tooth harrow and weeder. The plot that is mellow and free from stones can be more advantageously worked.

A hotbed is almost as essential as the garden plot and a single sash should be sufficient to provide enough plants for the ordinary farm garden. Choose a dry, sheltered spot near the garden and dig a pit eighteen or twenty inches deep and fill with fresh horse manure. Cover with a thin layer of straw and place frame, then fill in with four inches of fine rich loam and cover with sash, being careful to have glass slope slightly toward the south.

Peppers, early cabbage, tomatoes, lettuce, cauliflower and muskmelons can be given a good start under these conditions long before the frost is out of the ground.

Order only standard varieties from your seedman; there is little time or room for experimenting in the farm garden. Do not put off ordering the seed until it is time to plant peas. Order in February before the choice

needs have been exhausted, and have them in the house ready to sow the first day the soil is ready to receive them.

Peas, radishes, lettuce, early beets, turnips and spinach can be sown just as early in April as the frost is out of the ground. As soon as there is no danger of frost, cabbage, beans, parsnips, carrots, early potatoes and onions may be put in.

Squash, cucumbers, muskmelons, pumpkins and corn should not be planted until the middle of May, when the ground is thoroughly warm. A little later the cabbages, tomatoes and peppers can be transplanted from the hot-bed, and late peas, potatoes, beans and corn can be sown.

At this time the real pleasure of gardening begins. Never permit the weeds to get the start of the plants. Keep the soil stirred constantly even if there are no weeds so as to prevent the soil from packing, and to conserve moisture.

Watch for injurious insects and worms and destroy with paris green or kerosene emulsion before they become too numerous.

The following varieties are recommended for use in the farm garden:

Beans

Bush —	<i>Wax</i>	Golden, Black, Refugee.
	<i>Green snap</i>	Dwarf Horticultural, Giant Stringless Green-pod Valentine.
	<i>Shell</i>	Dwarf Horticultural, Red or White Kidney, Yellow Eye.
	<i>Lima</i>	Henderson's, Fordhook.
Pole —	<i>Green Podded</i>	Horticultural, Kentucky Wonder, Lazy Wife.
	<i>Wax</i>	Golden Butter, Black.
	<i>Lima</i>	White, Challenge, King of Garden.

Beets

<i>Early</i>	Crosby Egyptian, Eclipse.
<i>Main Season</i>	Detroit, Edmands.

Cabbage

<i>Early</i>	Early Jersey Wakefield, Early Erfurt.
<i>Main Season</i>	Danish Ball Head, Savoy, Stone Mason.

Carrots

Chantenay, Danvers, Oxheart, Harris Perfected Half Long.

Cauliflower

Snowball, Autumn Giant.

Celery

Golden Self Blanching, Boston Market, Giant Pascal, Paris Golden.

Sweet Corn

<i>Early</i>	Crosby, Early Cory.
<i>Main Season</i>	Golden Bantam, Black Mexican.
<i>Late</i>	Country Gentleman, Stowell's Evergreen.

Cucumbers

Improved White Spine, Fordhook, Boston Pickling, Davis Perfect.

Endive

Brown Leaf, Green Curled, White Curled.

Kale

Green Curled Scotch.

Kohl Rabi

White Vienna, Purple Vienna.

Lettuce

Big Boston, Deacon, Grand Rapids, Mignonette, Salamander, Holyrood Hot Weather.

Muskmelon

Netted Gem, Nutmeg, Hackensack, Emerald Gem.

Onions

Yellow Globe Danvers, Southport, Yellow Globe, Prizetakers, Extra Early Barletta.

Parsnips

Hollow Crown, Long Smooth White.

Peas

Early Alaska.

Mid Season Excelsior, Gradus, Thomas Laxton, Dwarf Champion.

Fall Telephone, Telegraph, Champion of England, Horsford's Market Garden.

Peppers

Large Bell, Bull Nose, Chinese Grant.

Potatoes

Early Early Rose, Early Northern.

Late Carmen No. 3, Green Mountain, Gold Coin, Irish Cobbler.

Pumpkins

Sweet Sugar, Quaker Pie.

Radishes

Early Scarlet Globe Turnips, French Breakfast.

Summer Strasburg, Chartier.

Winter California, White, Black Spanish.

Salsify

Mammoth Sandwich Island.

Spinach

Giant Thick Leaf, Bloomsdale, Victoria.

Squash

Summer Crook Neck, White Scallop, Vegetable Marrow, Cocanut.

Winter Hubbard, Delicious, Warren, Faxon.

Tomatoes

Belmont, Stone, Earliana, Success.

Turnips

Early Snowball, White Milan.

Late White Egg, Rutabaga.

Watermelon

Early Cole's, Vick's Early Sweetheart, Hungarian Honey.

In addition to these subjects there was one lecture on tobacco by George W. Harris, representing the New York Agricultural Experiment Station and the U. S. Department of Agriculture. The diseases of hops were treated by scientists from the experiment station at two meetings.

Following the policy inaugurated some years ago the subject of better meadows and pastures was presented wherever desirable, sometimes together, others separately. Seventy-one lectures on this general subject were given.

Believing that many acres which are not tilled and other which are abandoned might well be devoted to forest trees and that on many farms the woodlot receives scant or no attention, the subject of forestry was given a place 14 times. This has been made possible by the assistance of members of the staff of the State College of Forestry at Syracuse University, the State Conservation Commission, and the Department of Forestry, Cornell University. Nearly all these lectures were illustrated by stereopticon. The following instructive leaflet was distributed in many institutes:

PROFITABLE FARM FORESTRY

R. ROSENBLUTH, *State Conservation Commission*

In dealing with the farm woodlot, the average farmer has been neglectful. Though progressive in applying improved methods to increase the productivity of his farm and alert in conserving his other resources, he has continued careless, if not ruinous, woodlot methods. This is because he does not realize that with care and intelligent practice the wooded land of the farm can be made productive, contributing its share to the farm profits. As an example, one farmer, realizing the value of his woodlot, has continuously improved it for the past twelve years and to-day it is one of the most valuable parts of the farm. It has supplied fuel, fence posts, lumber for farm buildings and for repairs, and some has been sold. The work connected with its management was done in the winter and at odd times. The improved woods are now worth over \$150 per acre.

In addition to the valuable products and use for labor and teams in winter, woodlot cultivation provides a unit in a desirable diversity of crops and an insurance and reserve fund to draw on in case of accident, such as buildings being burned or during a fuel famine; uses land otherwise unproductive, and adds considerably to the value of the farm as a whole by making the otherwise poor parts well-kept and productive, and also affords protection as a windbreak.

Proper forestry methods secure the greatest return for the least expenditure of time and money and in a way that improves both farm and forest conditions. Intelligent and careful management of land best suited for growing timber will prove a profitable investment. This generally consists of a little extra time and labor; foregoing possible immediate cash returns from the sale of trees which might better be left to grow; and a very limited cash outlay for trees to plant.

Practical forest management for the ordinary farm means:

1. Protection from injury by fire, by grazing — excluding all stock except under special circumstances and for a very limited period,—and guarding against disease and insect attack.

2. Cleaning up all waste material from the ground, such as dead or dying trees, etc.

3. Avoiding all waste by adopting better and more careful methods — cutting low stumps, utilizing tops and limbs, and preventing injury to remaining trees.

4. Cutting living trees which would injure others if left, and securing a new crop from seed of the most desirable kinds.

5. Planting young trees either in open or waste places, or to make the existing woodlot fully productive. Tree stock for such planting can be secured from the State Conservation Commission at \$3.50 per thousand. Two men working together can plant at the rate of one thousand trees a day. In order to put the average woodlot of the state immediately in the best condition, about three hundred such trees per acre should be planted. Open lands need about twelve hundred trees per acre.

Laws have been passed to encourage the farmer in this work. In addition to being able to get trees for planting at cost, it is possible to secure exemption from or reduction of taxes on waste lands reforested and on well-managed woodlots.

These are the main points in a program of forestry for the farm, which if followed will result in increased profits, the result of advanced methods of cultivation of the entire farm.

The State Conservation Commission, Albany, through its practical foresters, is in a position to assist every farmer who is interested in this work, and welcomes inquiries upon any matter relating thereto.

Concrete construction had a place on 23 programs. Institute workers, Messrs. Witter and Barron, were sent at the expense of the Bureau of Farmers' Institutes to Chicago to attend the instructive meeting given by the Universal Portland Cement Company, whose guests they were while there. In this way they were able to obtain the latest information in this now most popular form of constructive material. They reported the trip equal to a short college course. Much valuable data was supplied to the workers and the following was placed on the back of many programs:

RULES FOR MAKING CONCRETE

EQUIPMENT

Wooden Measuring Box: 3 feet long, 1 foot, 4 inches wide, 1 foot high, without bottom, holding 4 cubic feet. Nail a 1-inch by 3-inch board, 5 feet long at the top on each side for handles.

Platform: 7 feet by 12 feet of 2-inch matched lumber, three 4-inch by 4-inch scantling rounded at the ends for runners, and a 2-inch by 4-inch scantling around the top.

Sand Screen: mesh $\frac{3}{8}$ -inch by 5-inch or 6-inch nailed to a wooden frame 2 feet by 5 feet and set at an angle of 45 degrees.

MATERIAL

Gravel, sand, cement, water. When screening what is called "bank run gravel," that is, gravel running from a fine sand to stones $1\frac{1}{2}$ inches in diameter, all stones passing through the screen will be $\frac{1}{4}$ inch or less in diameter, and are classified as sand and all other stones not passing through the screen are classified as gravel. Crushed hard stones may be used in place of gravel.

PROPORTIONS

* A 1-2-4 mixture; that is, 1 cubic foot of cement (1 sack of cement), 2 cubic feet of sand and 4 cubic feet of gravel, will make about $4\frac{1}{2}$ cubic feet of concrete.

For engine foundation, fence posts, sidewalks, silos, barn floors and troughs, use a 1-2-3 mixture.

For foundation walls use a 1-2-4 mixture.

* These are slightly stronger than as used by experts; but for the unexperienced it is safer to use a stronger mixture.

MIXING

Thorough mixing together of the sand, gravel and cement, before adding the water, is necessary. After mixing, form the dry materials into a cone-shaped pile, make a hollow place in the top and fill this with water, shovel the mixture over into the water. Continue this method until the mixture is soft and mushy.

GENERAL RULES

1. Concrete should be kept moist until hardened.
2. To unite new concrete to concrete already hardened, wet the surface of the hardened concrete thoroughly and cover with grout, made of water and cement to the consistency of cream; apply the new concrete at once.
3. Large stones may be used in concrete foundations provided the stones are wet thoroughly before placing in the wall.
4. Salt is injurious to concrete.
5. Freezing does not injure concrete unless it thaws out before it has become hard.

In all the subjects presented little was said as to phenomenal yields or records, but stress was laid on the difficulties encountered and suggestions made as to how they might be overcome. The economic end was ever kept in mind. The charge sometimes made that the advice given from the institute platform was not practical because involving an expenditure beyond the reach of the poor man is usually untrue. Only a rich man can afford to milk unprofitable cows, feed them dry cornstalks or undigestible compounded feeds; till undrained land, which can only return a minimum amount for labor, seed and fertilizer applied; buy low grade fertilizers, and a score of like uneconomic farm practices.

In addition to the above subjects, relating to soils, crops and stocks, the various needs of the farmer and his family were not forgotten. While the province of the institute is to teach a better agriculture, a meeting which has not left a desire for higher standards of citizenship has failed to accomplish all that it ought and might. Farm products, important and necessary as they are, are, after all, only means to an end — the bringing to rural folks, opportunities for making their lives more full and complete. This was the underlying thought in all the institutes, and was intentionally emphasized as never before.

In the majority of meetings at least one period in the evening was devoted to a discussion of a theme along ethical lines embracing the home, the church and the school — in short those things which make for citizenship of the highest order. No themes were more popular or received so many or favorable comments as these, indicating a keen appreciation on the part of New York's rural

population of the value and importance of a high order of citizenship. These subjects under a variety of titles were taken up 460 times.

Tables follow showing attendance, etc., at the institutes, together with other general statistics.

INSTITUTE WORK, JUNE 15, 1913, TO JUNE 14, 1914, INCLUSIVE
REGULAR INSTITUTES

COUNTY AND PLACE	LOCAL CORRESPONDENT	DATE	SES- SIONS	AT- TEND- ANCE	AVER- AGE PER SESSION
ALBANY:			17	922	54
Altamont.....	W. D. Fredericks, Guilderland Center.....	1913 Dec. 11	3	162	54
Coeymans Hollow....	Fred McCarty.....	Dec. 5-6	5	332	66
East Berne.....	H. A. Gallup, Altamont.....	Dec. 10	3	152	51
Latham.....	J. M. Gaffers.....	Dec. 13	3	115	38
South Westerlo.....	S. B. Palmer, R. D., Greenville.....	Dec. 4	3	161	54
ALLEGANY:			22	1,743	79
Almond.....	I. D. Karr.....	Feb. 12	3	223	74
Belmont.....	F. M. Carpenter.....	Feb. 13-14	5	311	62
Black Creek.....	F. D. Stowell.....	Feb. 6-7	5	410	82
Hume.....	A. D. Vedder, Fillmore.....	Feb. 12	3	203	69
Wellsville.....	E. W. Barnes.....	Feb. 16	3	311	104
West Clarks ville.....	S. S. Lane, R. D. 3, Friendship.....	Feb. 9	3	285	95
BROOME:			15	924	62
Chenango Forks.....	C. E. Brown.....	Mar. 11	3	128	43
Harpursville.....	Jos. T. Curtin, Nineveh.....	Mar. 4	3	128	43
Vestal.....	Lewis Haight, R. D., Vestal.....	1913 Dec. 13	3	186	62
Whitney Point.....	F. C. Branday.....	1914 Mar. 11-12	3	227	76
Windsor.....	F. M. Philley.....	Mar. 5	3	255	85
CATTARAUGUS:			22	1,843	84
Conewango.....	Mrs. L. Gardner.....	Jan. 22	3	165	55
Gowanda.....	L. R. Simons.....	Jan. 19	3	187	62
Ischua.....	E. N. Williams.....	Feb. 11	3	228	76
Machias.....	C. H. Murphy.....	Feb. 10	3	254	85
Napoli.....	C. E. Van Aken, R. D. 2, Little Valley.....	Feb. 4-5	4	493	123
Perrysburg.....	John W. Hall.....	Jan. 20	3	348	116
West Valley.....	A. H. Mathewson.....	Jan. 14	3	168	56
CAYUGA:			24	1,537	64
Auburn.....	A. J. Parker.....	Feb. 28	3	147	49
Conquest.....	E. S. Wilcox, R. D. 39, Port Byron.....	Jan. 14	3	225	75
Dresserville.....	R. R. Lawrence, R. D. 16, Moravia.....	Jan. 29	3	116	39
Fair Haven.....	M. C. Turner.....	Jan. 12	3	110	37
Locke.....	I. J. Main.....	Jan. 28	3	414	138
Sherwood.....	C. H. Cook, Poplar Ridge.....	Jan. 26	3	198	66
Victory.....	G. T. Brackett, R. D. 54, Red Creek.....	Jan. 13	3	118	39
Weedsport.....	A. M. Pierce, Jordan.....	Jan. 15	3	209	70
CHAUTAUQUA:			43	4,174	97
Brocton.....	C. R. Berger, Portland.....	Jan. 30-31	5	273	55
Busti.....	J. W. Sanbury, R. D. 79, Jamestown.....	Feb. 3	3	326	109
Cherry Creek.....	Gerry H. Wilcox.....	Jan. 21	3	138	46
Clymer.....	John F. Costello.....	Jan. 26	3	352	117
Ellington.....	L. G. Brainard.....	Jan. 23	3	320	107
Finley Lake.....	W. L. Nuttall.....	Jan. 28	3	848	283
Frewsburg.....	Miss Brendice Little, R. D., Frewsburg.....	Jan. 24	3	269	90
Mayville.....	Miss Addie Dinsbier.....	Feb. 2	3	298	99
Panama.....	C. G. Tripp, Ashville.....	1913 Nov. 19	3	260	87
Sherman.....	Mrs. May Whitney.....	1914 Jan. 27	3	208	69
Sinclairville.....	Clinton Edson.....	1913 Nov. 20	3	267	89
Stedman.....	G. G. Swart, Ashville.....	1914 Jan. 29	3	273	91
Stockton.....	J. A. Woodward.....	1913 Nov. 21-22	5	342	68
CHEMUNG:			15	990	66
Big Flats.....	Fred Havens.....	1914 Feb. 6	3	232	77
Erin.....	E. E. Welton, R. D. 2, Erin.....	Feb. 24	3	240	80
Hicks.....	F. J. Tillman, R. D. 2, Erin.....	Feb. 25	3	171	57

REGULAR INSTITUTES — *Continued*

COUNTY AND PLACE	LOCAL CORRESPONDENT	DATE	SESSIONS	ATTENDANCE	AVERAGE PER SESSION
CHEMUNG—Concluded:					
Horseheads.....	Clifford Shappee, R. D. 2, Horseheads.....	Feb. 7	3	187	62
Millport.....	B. J. Parsons, R. D. 2, Horseheads.....	Feb. 4	3	160	53
CHENANGO:					
Afton.....	Fred Church.....	Dec. 1	18 3	1,522 408	85 136
CLINTON:					
Coventry.....	F. A. Kelley.....	Mar. 9	2	145	73
Oxford.....	A. D. Harrington.....	Mar. 6-7	5	285	57
Smithville Flats.....	E. H. Skilliman.....	Mar. 10	2	165	83
COLUMBIA:					
Smyrna.....	Albert G. Ladd.....	Dec. 15	3	207	69
South New Berlin.....	L. E. Wheeler.....	Dec. 20	3	312	104
Churubusco.....	Chas. Stevens, Clinton Mills.....	Dec. 18	18 3	1,467 182	82 61
Ellenburg Center.....	Dayton Hutchins.....	Dec. 17	3	445	148
Mooers.....	Henry Gilbert.....	Dec. 16	3	135	45
Morrisonville.....	W. H. Banker, R. D. 4, Plattsburg.....	Dec. 8	3	136	45
Saranac.....	Mrs. C. H. Cane.....	Dec. 9	3	285	95
West Chazy.....	R. E. Slosson.....	Dec. 15	3	284	95
CORTLAND:					
Cincinnatus.....	A. L. Cook.....	Feb. 2	26 3	2,240 476	86 159
Cortland.....	A. J. Sears.....	Jan. 30-31	5	281	56
Freetown Corners.....	M. Merrihew, R. D. 3, Marathon.....	Feb. 6	3	128	43
Homer.....	E. L. Hull, R. D. 1.....	Feb. 7	3	227	76
Marathon.....	Mrs. A. L. Hunt.....	Feb. 5	3	421	140
Preble.....	M. S. Nye.....	Feb. 9	3	205	68
Texas Valley.....	Richard Phalen, Marathon.....	Feb. 4	3	324	108
Willett.....	H. B. Coates.....	Feb. 3	3	178	59
DELAWARE:					
Andes.....	A. M. Kling.....	Dec. 4	20 3	936 81	47 27
East Meredith.....	E. E. Stebbins.....	Dec. 2	3	142	47
Franklin.....	A. D. Rowell, R. D. 1.....	Dec. 23	3	221	74
Halcottsville.....	W. B. Vermilya.....	Dec. 5-6	5	220	44
Hobart.....	John A. Mihalko.....	Dec. 3	3	148	49
Sidney Center.....	Arthur Rutenber.....	Mar. 3	3	124	41
DUTCHESS:					
Amenia.....	Henry Mygatt.....	Jan. 28	19 2	1,025 60	54 30
Clinton Corners.....	M. E. Knapp, Millbrook.....	Jan. 23-24	5	308	62
Freedom Plains.....	Jas. Skidmore, Pleasant Valley.....	Jan. 26	3	107	36
Myers Corners.....	Oscar R. Widmer, Wappingers Falls.....	Jan. 22	3	147	49
Upper Red Hook.....	J. A. Fraleigh.....	Jan. 16	3	239	80
Wicoppee.....	J. S. Warren, Hopewell Jct.....	Jan. 21	3	164	55
ERIE:					
Clarence Center.....	G. D. Carman.....	Jan. 9-10	25 5	2,625 880	105 176
East Aurora.....	Mrs. Frank Ball.....	Jan. 17	3	193	64
Hamburg.....	J. S. Newton.....	Jan. 12	3	288	96
Lancaster.....	H. H. Dann.....	Jan. 7	3	149	50
Marilla.....	Rev. W. S. Johnson.....	Mar. 14	3	467	156
Sardinia.....	W. A. Briggs, Chaffee.....	Jan. 16	3	227	76
South Wales.....	Austin Sleeper.....	Jan. 15	2	245	123
Springville.....	L. T. Clark.....	Jan. 13	3	176	59
ESSEX:					
Crown Point.....	W. S. Green.....	Dec. 5	20 3	1,695 377	85 126
Jay.....	Mrs. Anna S. Kent.....	Dec. 11	3	394	131
Keesville.....	O. A. Wolcott.....	Dec. 12-13	5	314	63
Lake Placid.....	C. A. Goff, Cascade.....	Dec. 10	3	226	75

REGULAR INSTITUTES — *Continued*

COUNTY AND PLACE	LOCAL CORRESPONDENT	DATE	SESSIONS	ATTENDANCE	AVERAGE PER SESSION
ESSEX—Concluded:					
Reber.....	E. M. West.....	Dec. 6	3	279	93
Ticonderoga.....	W. G. Wicker.....	Dec. 4	3	105	35
FRANKLIN:					
Bombay.....	Geo. Rockwood.....	1914 Jan. 19	20 3	1281 247	64 82
Burke.....	A. J. Moe.....	1913 Dec. 19	3	133	44
Dickinson Center....	Floyd Elmer.....	1914 Jan. 20	2	68	34
Fort Covington.....	Mrs. M. P. Merrick.....	1913 Dec. 23	3	203	68
Gabriels.....	J. J. Fitz Gerald, Harrietstown	Dec. 22	3	188	63
Malone.....	L. L. Foote.....	Dec. 20	3	253	84
Moirra.....	Timothy O'Connell.....	1914 Jan. 17	3	189	63
GENESEE:					
Alexander.....	Earl Kidder.....	Mar. 3	27 3	2,198 216	81 72
Batavia.....	Albert H. Call.....	Feb. 28	3	354	118
Bethany.....	J. W. Burke.....	Mar. 12	3	299	100
Byron.....	Thomas Roach.....	Feb. 27	3	250	83
Corfu.....	C. D. Silliman.....	Mar. 2	3	181	60
Elba.....	J. S. Wilford.....	Feb. 25	3	173	58
Fort Hill.....	D. J. Renegar, Le Roy.....	Mar. 7	3	155	52
Oakfield.....	B. W. Taylor, Batavia.....	Feb. 24	3	191	64
Pavilion Center.....	Robert Bradley.....	Mar. 11	3	379	126
GREENE:					
Freehold.....	R. T. Story.....	1913 Dec. 2	15 3	1,211 236	81 79
Leeds.....	D. J. Hamm.....	Dec. 1	3	268	89
Oak Hill.....	Chas. W. Newman.....	Dec. 3	3	220	73
Prattsville.....	Elmer Krieger.....	Dec. 3	3	166	55
West Coxsackie.....	F. W. Cole.....	1914 Feb. 11	3	321	107
HERKIMER:					
Dolgeville.....	A. J. Duncel.....	Feb. 3	21 3	935 108	44 36
Frankfort.....	A. S. Seaman.....	Feb. 23	3	123	41
Jordanville.....	J. L. Paine, R. D., Mohawk.....	Feb. 24	3	189	63
Millers Mills.....	C. D. Huxtable.....	Feb. 25	3	126	42
Norway.....	John G. Frank, Newport.....	1913 Dec. 1	3	128	43
Ohio.....	Eugene Hemstreet, R. D., Cold Brook.....	Dec. 3	3	121	40
Russia.....	W. H. Hughes, R. D., Barneveld.....	Dec. 2	3	140	47
JEFFERSON:					
Adams Center.....	B. L. Hunt.....	Dec. 15	36 3	2,717 343	75 114
Belleville.....	W. S. Martin.....	Dec. 16	3	226	75
Carthage.....	E. G. Lewis.....	Dec. 10	3	177	59
Clayton.....	George Daniels.....	1914 Jan. 8	3	141	47
De Pauville.....	Adam Dorr.....	Jan. 7	3	265	88
Dexter.....	F. E. George, Limerick.....	Jan. 5	3	311	104
Mannsville.....	J. W. Smith.....	1913 Dec. 17	3	143	48
Natural Bridge.....	E. H. Allen.....	Dec. 8	3	83	28
Philadelphia.....	Geo. A. Hardy, Plessis.....	1914 Jan. 9	3	213	71
Plessis.....	A. H. Rowell, R. D., LaFargeville.....	Jan. 9-10	3	342	114
South Rutland.....	H. S. Todd, East Rodman.....	1913 Dec. 11	3	293	98
Three Mile Bay.....	Geo. E. Herrick.....	1914 Jan. 6	3	180	60
LEWIS:					
Barnes Corners.....	H. H. Greene, R. D. 3., Copenhagen.....	1913 Dec. 12-13	16 5	1,659 235	104 47
Beaver Falls.....	H. J. Maurer, R. D. 2, Castorland.....	Dec. 5-6	5	689	138
Constableville.....	O. C. Thayer.....	Dec. 4	3	395	132
West Leyden.....	F. P. Grubel.....	Nov. 22	3	340	113

REGULAR INSTITUTES — *Continued*

COUNTY AND PLACE	LOCAL CORRESPONDENT	DATE	SESSIONS	ATTENDANCE	AVERAGE PER SESSION
LIVINGSTON:		1914	10	1,453	76
Caledonia.....	Mrs. A. B. Johnson.....	Jan. 16-17	5	263	53
Conesus.....	Chas. McGinty.....	Jan. 15	3	321	107
Greigsville.....	E. W. DeGraff.....	Feb. 10	3	216	72
Linwood.....	P. R. Carmichael.....	Feb. 9	3	273	91
Sparta Center.....	John E. Manning.....	Feb. 11	3	213	71
Springwater.....	Scott Swarts.....	Jan. 14	2	167	84
MADISON:			40	3,451	86
Brookfield.....	C. W. Camanga, R. D., West Edmeston.....	Feb. 26-27	4	352	88
Canastota.....	James Bettenger.....	Jan. 26	3	236	79
De Ruyter.....	G. B. Burdick.....	Jan. 29-30	5	554	111
Earlville.....	N. M. Congdon.....	1913 Dec. 22-23	5	296	59
Erieville.....	P. H. Brown.....	1914 Jan. 27	3	400	133
Fenner.....	J. L. O'Hara, Cazenovia.....	1913 Nov. 18	3	182	61
Hamilton.....	J. G. Patterson.....	Dec. 16	3	190	63
Madison.....	W. T. Taylor, Solsville.....	Dec. 17	3	212	71
Nelson.....	K. W. Jones.....	Nov. 17	3	386	129
New Woodstock.....	I. H. Hunt.....	1914 Jan. 28	3	347	116
Stockbridge.....	C. E. Love, Munnsville.....	1913 Dec. 19-20	5	296	59
MONROE:		1914	32	3,918	122
Brookport.....	E. W. Brigham.....	Mar. 9	3	225	75
Chili.....	B. McNall, Scottsville.....	Jan. 23	3	327	109
Churchville.....	W. G. McIntosh.....	Feb. 26	3	274	91
Fairport.....	Irving Warner.....	Jan. 20	3	386	129
Gates Center.....	John C. Curry, Jr., Gates.....	Jan. 24	3	267	89
Greece.....	Judson Kenyon, Barnard.....	Jan. 22	3	372	124
Hilton.....	J. B. Miller.....	Feb. 14	3	247	82
Honeoye Falls.....	James Heath.....	Feb. 6	3	210	70
Pittsford.....	D. J. Howard, Henrietta.....	Jan. 21	3	357	119
Webster.....	Geo. W. Dunn.....	Mar. 11-12	5	1,253	251
MONTGOMERY:			15	1,120	75
Canajoharie, Seiber's Lane Grange.....	C. L. St. John, Canajoharie.....	Feb. 27	3	252	84
Charlestown Four Corners.....	O. A. Tillapaugh, Sloansville.....	Feb. 6	3	190	63
Freysbush.....	F. J. Hiller, R. D. 3, Ft. Plain.....	Feb. 4	3	274	91
Minaville.....	H. A. Hewitt.....	Feb. 7	3	240	80
Rural Grove.....	A. H. Dievendorf, Sprakers.....	Feb. 5	3	164	55
NASSAU:			4	216	54
Mineola.....	E. V. Titus, Glen Cove.....	Jan. 19-20	4	216	54
NIAGARA:			23	3,248	141
Barker.....	J. C. Connolly.....	Feb. 10	3	459	153
Johnson's Creek.....	W. W. Prudom, R. D. 38, Middleport.....	Feb. 19	3	618	206
Lewiston.....	J. C. Duncan.....	Jan. 6	2	232	116
Lockport.....	E. E. Crosby, R. D., Lockport.....	Feb. 20	3	314	105
Newfane.....	Miss Elma McKee.....	Feb. 21	3	363	121
Pekin.....	Chas. E. Mabon, Sanborn.....	Feb. 23	3	654	218
Pendleton Center.....	L. J. T. Richards, R. D. 4., Lockport.....	Jan. 8	3	300	100
Ransomville.....	W. D. Wisner.....	Feb. 9	3	308	103
ONEIDA:		1913	18	1,484	82
Ava.....	N. C. Vary.....	Nov. 21	3	151	50
Bridgewater.....	Miss A. S. Ward.....	1914 Feb. 27-28	3	145	48
Floyd.....	O. B. Lawton, Stittville.....	1913 Nov. 19	3	227	76
Knoxboro.....	Chas. Fairchild.....	Dec. 18	3	335	112
Verona.....	J. W. Davis, Verona Station.....	1914 Feb. 2	3	311	104
Westernville.....	Thos. M. Carroll.....	1913 Nov. 20	3	315	105

REGULAR INSTITUTES — *Continued*

COUNTY AND PLACE	LOCAL CORRESPONDENT	DATE	SESSIONS	ATTENDANCE	AVERAGE PER SESSION
ONONDAGA:					
Baldwinsville.....	John T. Mellor, R. D. 3.....	Feb. 20	32	2,799	87
Borodino.....	Lee Monk, R. D. 1, Marietta.	Feb. 12	3	462	154
Cicero.....	Mrs. Ernest Hazard, R. D. 1, Brewerton.....	Feb. 17	3	308	103
Fayetteville.....	F. E. Dawley.....	Dec. 5-6	5	207	69
Jordan.....	H. J. Picard, R. D. 1.....	Feb. 21	3	697	139
Mandana.....	Fred Bowker, R. D. 1, Skaneateles.....	Feb. 11	3	217	72
Navarino.....	Frank Rouse, R. D. 4 Marcellus.....	Feb. 13	3	126	42
North Manlius.....	Miss M. O. Hulburt, R. D. 1, Kirkville.....	Feb. 16	3	263	88
Onondaga Hill.....	John H. Tucker, R. D. 2, Syracuse.....	Feb. 14	3	213	71
Tully.....	John C. Reagan.....	Feb. 10	3	92	31
				214	71
ONTARIO:					
Canandaigua.....	O. J. Cooley.....	Mar. 9	24	2,220	93
Clifton Springs.....	H. D. Converse.....	Jan. 26	3	178	59
Hall.....	Frank Hall.....	Jan. 28	3	330	110
Honeoye.....	F. B. Allen.....	Feb. 7	3	270	90
Naples.....	M. M. Wheeler.....	Mar. 12	3	269	90
Oaks Corners.....	J. S. Dolittle, R. D., Phelps.....	Mar. 7	3	305	102
Seneca Castle.....	Levi A. Page.....	Jan. 27	3	235	78
Victor.....	A. G. Aldridge.....	Feb. 5	3	288	96
				345	115
ORANGE:					
Balmville.....	G. S. Sheely, R. D. 1, Newburgh.....	Jan. 20	26	1,013	39
Bullville.....	I. V. Ellis.....	Feb. 18	3	223	74
Goshen.....	C. S. Wells.....	Feb. 21	3	121	40
Monroe.....	W. H. Owens.....	Feb. 23	3	68	23
Montgomery.....	John K. Brown.....	Feb. 13-14	5	65	22
Otisville.....	J. H. Smith.....	Feb. 19	3	85	17
Pine Bush.....	Elmer Van Keuren.....	Feb. 17	3	83	28
Unionville.....	Mrs. M. B. Stoll.....	Feb. 20	3	111	37
				257	86
ORLEANS					
Clarendon.....	Herbert Allis, Holly.....	Mar. 10	20	1,458	73
East Shelby.....	B. C. Roberts, Medina.....	Feb. 18	3	118	39
Lyndonville.....	C. H. I. Potter.....	Feb. 11	3	282	94
Medina.....	Jay Allis.....	Feb. 17	2	226	75
Morton.....	F. M. Botting.....	Feb. 13	3	249	125
Sandy Creek.....	Leigh Walter, Holley.....	Feb. 16	3	245	82
Waterport.....	R. W. Bamber.....	Feb. 12	3	207	69
				131	44
OSWEGO:					
Amboy.....	Fred Jamieson, R. D., Williams-town.....	Dec. 23	38	3,354	88
Bernhards Bay.....	H. E. Myers.....	Feb. 18	2	122	61
Central Square.....	Chas. B. Allen, R. D. 1.....	Feb. 19	3	295	98
Hannibal.....	P. A. Welling.....	Jan. 10	3	360	120
				593	198
Lacona.....	A. R. Stevens.....	Dec. 18	3	117	39
Lycoming.....	O. H. Cornwall.....	Jan. 9	3	181	60
Mexico.....	G. A. Buck.....	Jan. 8	3	260	87
Mt. Pleasant.....	Chas. Potter, R. D. 2, Fulton.....	Jan. 7	3	375	125
Orwell.....	Geo. S. Loomis.....	Dec. 19	3	207	69
Palermo.....	Martin Dolbear, R. D. 2, Fulton.....	Jan. 6	3	243	81
Phoenix.....	W. H. Carrier.....	Jan. 5	3	247	82
Pulaski.....	E. H. Minot, R. D., Richland.....	Dec. 20	3	204	68
Williamstown.....	E. N. Harris.....	Dec. 22	3	150	50
ORSEGO:					
Cherry Valley.....	H. Cassart.....	Dec. 15	24	2,104	88
Fly Creek.....	S. H. Elderkin.....	Dec. 18	3	283	94
				184	61

REGULAR INSTITUTES — *Continued*

COUNTY AND PLACE	LOCAL CORRESPONDENT	DATE	SESSIONS	ATTENDANCE	AVERAGE PER SESSION
1913					
OTSEGO—Concluded:					
Garrettsville.....	Geo. B. Myers.....	Dec. 19	3	185	62
Gilbertsville.....	Samuel Halbert.....	Dec. 22	3	211	70
Middlefield.....	Claud E. Cook, R. D. 2, Cooperstown.....	Dec. 16	3	217	72
Schenevus.....	C. M. Bulson.....	Dec. 13	3	262	87
Westville.....	Geo. Chamberlain, R. D., Schenevus.....	Dec. 17	3	210	70
Worcester.....	Noah E. Vredenburg, R. D. 3, Worcester.....	Dec. 12	3	552	184
PUTNAM:					
Adams Corners.....	Geo. F. Barmore.....	Jan. 30	3	603	67
Mahopac.....	F. J. Ganong, Crafts.....	Jan. 29	3	250	83
Patterson.....	E. F. Hayt, Brewster.....	Jan. 27	3	127	42
				226	75
RENSSELAER:					
Berlin.....	Arthur Cowee.....	Jan. 8	22	1,761	80
			3	157	52
Center Brunswick....	I. W. Abbott, R. D. 1, Troy..	Dec. 19-20	5	407	81
Hoosick Falls.....	J. C. Cottrell.....	Jan. 9-10	5	325	65
Melrose.....	A. S. Chase, R. D. 2, Melrose.	Dec. 11	3	267	89
Raymertown.....	E. L. Button, R. D. 2, Melrose.	Dec. 12	3	414	138
Stephentown.....	W. L. Cranston.....	Jan. 7	3	191	64
ROCKLAND:					
Tallmans.....	Thomas Husson, Pomona.....	Feb. 24-25	5	315	63
			5	315	63
ST. LAWRENCE:					
Fine.....	J. P. Griffin, Oswegatchie....	Dec. 9	41	3,564	87
			3	423	141
Hammond.....	E. P. Allen.....	Jan. 5	3	343	114
Heuvelton.....	N. S. Hutchinson.....	Jan. 9-10	5	588	118
Lawrenceville.....	J. P. Hourihan, No. Lawrence.	Jan. 22	3	195	65
Lisbon.....	J. L. Craig, R. D., Ogdensburg	Jan. 7-8	5	628	126
Madrid.....	Herbert Sweet.....	Jan. 12	1	25	25
Morristown.....	B. B. Lane, R. D. 2, Hammond	Jan. 6	3	181	60
Nicholville.....	H. B. Chandler.....	Jan. 21	3	99	33
Norfolk.....	C. A. Whittaker, Raymondville	Jan. 13	2	57	29
Potsdam.....	B. T. Scott.....	Jan. 23	3	208	69
Spragueville.....	Rev. W. K. Bradshaw.....	Jan. 24	2	100	50
Waddington.....	M. J. Elliott, R. D., Madrid..	Jan. 14	3	155	52
Winthrop.....	Geo. G. Gillette.....	Jan. 15-16	5	562	112
SARATOGA:					
Charlton.....	C. S. Hayne, Ballston Lake...	Feb. 9	14	989	71
			2	176	88
Clifton Park Center..	J. F. Peck, Rexford.....	Feb. 10	3	222	74
Gansevoort.....	Haywood Cary.....	Dec. 8	3	149	50
Greenfield Center....	W. G. Robinson.....	Dec. 9	3	212	71
Wayville.....	W. R. Putnam.....	Dec. 10	3	230	77
SCHENECTADY:					
Glenville.....	Mina Van Epps, Hoffmans...	Dec. 29	8	521	65
Mariaville.....	H. A. Turnbull, Pattersonville	Dec. 31	2	171	86
Pattersonville.....	I. F. Patterson.....	Dec. 30	3	190	63
			3	160	53
SCHOHARIE:					
Breakabeen.....	W. H. Travis, R. D. 1, Middleburg.....	Dec. 1	21	896	43
			3	131	44
Fultonham.....	Moses Lawyer.....	Dec. 6	3	114	38
Gallupville.....	Geo. Becker.....	Dec. 9	3	123	41
Gilboa.....	D. W. Southard.....	Dec. 2	3	169	56
Livingstonville.....	W. Auchemphaugh.....	Dec. 5	3	145	48
Manorkill.....	G. W. Van Steenburg.....	Dec. 4	3	152	51
Middleburg.....	W. E. Van Wormer.....	Dec. 8	3	62	21
SCHUYLER:					
Beaver Dams.....	Dennis Schuyler, R. D. 1.....	Feb. 5	17	1,610	95
Burdett.....	M. K. Mulligan.....	Feb. 2	3	327	109
Catherine.....	Mrs. M. H. Hewitt, Alpine...	Feb. 3	3	385	128
Moreland.....	A. W. Russell, R. D., Beaver Dams.....	Mar. 6	2	238	79
				155	78

REGULAR INSTITUTES — *Continued*

COUNTY AND PLACE	LOCAL CORRESPONDENT	DATE	SESSIONS	ATTENDANCE	AVERAGE PER SESSION
SCHUYLER—Concluded:					
Tyrone.....	Lewis Beach.....	1913 Nov. 17	3	215	72
Wayne.....	D. E. Hoover, Keuka.....	1914 Mar. 7	3	290	97
SENECA:					
Covert.....	Mrs. May Stevens.....	Mar. 5	11 3	746 195	68 65
Romulus.....	E. L. Cook.....	Mar. 6	3	196	65
Seneca Falls.....	Wm. T. Beach, R. D. 3.....	Mar. 11-12	5	355	71
STEBEN:					
Bath.....	H. S. Emerson.....	Jan. 9-10	38 5	2,987 381	79 76
Campbell.....	J. C. Tharp, R. D. 2.....	Jan. 6	3	194	65
Canisteo.....	J. A. Allen.....	Feb. 20-21	5	290	58
Caton.....	Henry Walden, R. D. 2, Corn- ing.....	Jan. 5	3	242	81
Cohocton.....	Nicholas Hoag.....	Jan. 12	3	158	53
Greenwood.....	T. M. Blair.....	Feb. 19	3	307	102
Hedgesville.....	Marion Lewis, R. D. 2, Cam- eron Mills.....	Feb. 23	2	89	45
Hornby.....	J. I. Easterbrook, Beaver Dams	1913 Nov. 18	3	283	94
North Urbana.....	H. M. DeGraw, R. D. 4, Ham- mondsport.....	1914 Jan. 7	3	316	105
Prattsburg.....	W. H. Babcock.....	Jan. 8	3	376	125
Stephens Mills.....	L. K. Robinson, R. D. 2, Hor- nell.....	Feb. 17-18	5	351	70
SUFFOLK:					
Bridgehampton.....	H. T. Haney.....	Jan. 13-14	17 5	1,229 310	72 62
East Northport.....	F. B. Smith, Ft. Salonga.....	Jan. 12-13	4	326	82
Orient.....	L. M. Young.....	Jan. 15	3	173	58
Southold.....	G. H. Smith, Peconic.....	Jan. 16-17	5	420	84
SULLIVAN:					
Fremont Center.....	Frank S. Bury.....	1913 Dec. 11	15 3	1,549 237	103 79
Grahamsville.....	Wm. Booth.....	Dec. 9	3	376	125
Hurleyville.....	F. A. Durland.....	Dec. 8	3	178	59
Jeffersonville.....	Chas. S. Hicks.....	Dec. 10	3	536	179
Lake Huntington.....	H. J. Tyler, Cohecton Center.	Dec. 12	3	222	74
TIOGA:					
Apalachin.....	C. F. Giles.....	1914 Feb. 27-28	16 5	1,429 673	89 135
Nichols.....	S. N. Lounsberry, Lounsberry.	Mar. 3	2	83	42
North Barton.....	D. V. Besemer, R. D. 2, Waverly	Feb. 26	3	252	84
Spencer.....	Fred Seely, R. D., Van Etten..	Mar. 5	3	273	91
Waverly.....	Miss Alida Murray.....	Mar. 4	3	148	49
TOMPKINS:					
Danby.....	L. W. Hulslander, Wilseyville.	Feb. 2	18 3	1,319 222	73 74
Dryden.....	Mrs. Chas. Hoehn.....	Jan. 31	3	186	62
Enfeld Center.....	F. D. Rumsey, R. D. 2, New- field.....	Feb. 4	3	205	68
Speedsville.....	P. G. Meddaugh, R. D. 2, Candor.....	Jan. 30	3	170	57
Trumbull Corners.....	C. B. Boice, Newfield, R. D. 28	Feb. 3	3	233	78
West Groton.....	W. H. Bulkley, Groton.....	Jan. 27	3	303	101
ULSTER:					
Clintondale.....	W. D. Tallman, R. D., High- land.....	Jan. 19	12 3	740 330	62 110
Lake Katrine.....	C. E. Davis, R. D. 4, Sauger- ties.....	Jan. 17	3	122	41
Mettacahonts.....	D. E. Schoonmaker, Accord..	Feb. 12	3	162	54
Wallkill.....	C. O. Smith, R. D. 1.....	Feb. 16	3	126	42
WASHINGTON:					
Argyle.....	G. S. Carswell, R. D. 1, Smiths Basin.....	1913 Dec. 15	27 3	1,919 322	71 107
Cambridge.....	W. J. Davis.....	Dec. 17	3	222	74
Clemons.....	B. P. Ripley, R. D. 1, Clemons	Dec. 2	3	117	39
Easton.....	Jacob Pratt, R. D., Greenwich.	Dec. 18	3	231	77
Hartford.....	J. H. Beadle.....	Dec. 22	3	198	66

REGULAR INSTITUTES — *Concluded*

COUNTY AND PLACE	LOCAL CORRESPONDENT	DATE	SES- SIONS	AT- TEND- ANCE	AVER- AGE PER SESSION
WASHINGTON—Concl'd.					
		1913			
North Granville.....	Geo. S. Chapin, Smiths Basin.	Dec. 23	3	128	43
Putnam.....	R. B. Graham.....	Dec. 3	3	195	65
West Hebron.....	W. E. Getty, R. D., Granville.	Dec. 16	3	386	129
Whitehall.....	M. E. Wilsey, R. D. 1.....	Dec. 1	3	120	40
WAYNE:					
		1914	26	2,520	97
Lincoln.....	J. C. Hulbert.....	Jan. 23	3	447	149
Macedon.....	Miss G. C. Packard.....	Jan. 19	3	259	86
Ontario.....	John Fewster.....	Jan. 22	3	452	151
Savannah.....	Gipson Mead.....	Jan. 16-17	5	409	82
Sodus.....	B. E. Moody.....	Jan. 21	3	204	68
South Butler.....	W. E. Hall.....	Jan. 19	3	195	65
Walworth.....	Warner D. Esley.....	Jan. 24	3	241	80
Wolcott.....	Mrs. Judd Clark.....	Jan. 20	3	313	104
WESTCHESTER:					
			2	278	139
Lincolndale.....	Rev. Bro. Barnabas.....	Jan. 31	2	278	139
WYOMING:					
			21	2,675	123
Attica.....	C. Broadbooks.....	Mar. 4	3	203	68
Bliss.....	E. J. Foote.....	Mar. 6	3	350	117
Cowlesville.....	L. M. Kittsley.....	Jan. 5	3	371	124
Curriers.....	C. F. Day, Java.....	Mar. 5	3	415	138
Perry Center.....	B. A. Nevins, Perry.....	Mar. 7	3	363	121
Silver Springs.....	M. W. Broughton.....	Mar. 9	3	353	118
Wyoming.....	F. S. Hayden.....	Mar. 10	3	620	207
YATES:					
			17	1,679	99
Bellona.....	T. M. Morrison.....	Jan. 29	3	293	98
Lakemont.....	Jas. S. Frost.....	Mar. 9	3	239	80
Middlesex.....	Herbert Foster, Rushville.....	Mar. 11	3	355	118
Penn Yan.....	Mrs. Timothy Costello.....	Jan. 30-31	5	405	81
Rushville.....	L. C. Williams.....	Mar. 10	3	387	129
Total.....			1,131	91,917	81

SUMMER INSTITUTES

COUNTY AND PLACE	LOCAL CORRESPONDENT	DATE	SES- SIONS	AT- TEND- ANCE	AVER- AGE PER SESSION
BROOME:					
Binghamton.....	Ed. S. Graney.....	1913 Aug. 9	2	85	43
DUTCHESS:					
Union Vale.....	R. C. Grannis, LaGrangeville.	Oct. 10	2	150	75
ERIE:					
Iroquois.....	Mrs. E. P. Lincoln.....	June 24	2	232	116
WARREN:					
Hague.....	B. S. West.....	Oct. 15	2	77	39
North Creek.....	F. C. Hooper, North River...	Oct. 16	2	42	21
Totals.....			10	586	59

STATE-WIDE COOPERATIVE MEETINGS

New York State Agricultural Society.

New York State Breeders' Association.

New York State Dairymen's Association.

New York State Fruit Growers' Association.

State College of Agriculture, Ithaca, Farmers' week.

State School of Agriculture, Morrisville, Farmers' week.

State School of Agriculture, Alfred, Farmers' week.

RECAPITULATION FOR REGULAR INSTITUTES, INSTITUTE SCHOOLS, SUMMER INSTITUTES, AND MISCELLANEOUS MEETINGS, JUNE 15, 1913, TO JUNE 14, 1914, INCLUSIVE.

	NO. OF IN- STITUTES	SESSIONS	TOTAL ATTEND- ANCE	AVERAGE PER SESSION
Regular Institutes.....	359	1,131	91,917	81
Round-Up Institutes.....	6	48	10,091	210
Summer Institutes.....	5	10	586	59
Miscellaneous Meetings.....	94	114	16,754	147
	464	1,303	119,348	92

NUMBER OF DAYS' WORK IN EACH COUNTY

(Three regular sessions constitute one day.)

COUNTY	DAYS	COUNTY	DAYS
<i>Regular Institutes</i>		<i>Regular Institutes</i>	
Albany.....	5½	Rensselaer.....	7
Allegany.....	7½	Rockland.....	1
Broome.....	5	St. Lawrence.....	13
Cattaraugus.....	7½	Saratoga.....	4
Cayuga.....	8	Schenectady.....	2
Chautauqua.....	14½	Schoharie.....	7
Chemung.....	5	Schuyler.....	5
Chenango.....	6	Seneca.....	3
Clinton.....	6	Steuben.....	12
Columbia.....	6½	Suffolk.....	5
Cortland.....	8½	Sullivan.....	5
Delaware.....	6½	Tioga.....	5½
Dutchess.....	6½	Tompkins.....	6
Erie.....	8	Ulster.....	4
Essex.....	6½	Washington.....	9
Franklin.....	6½	Wayne.....	8½
Genesee.....	9	Westchester.....	5
Greene.....	5	Wyoming.....	7
Herkimer.....	7	Yates.....	5
Jefferson.....	12	Total.....	377½
Lewis.....	5½	<i>Summer Institutes</i>	
Livingston.....	6½	Broome.....	1
Madison.....	13½	Dutchess.....	1
Monroe.....	10½	Erie.....	1
Montgomery.....	5	Warren.....	1
Nassau.....	1½	Total.....	3
Niagara.....	7½	<i>Round-up Institutes</i>	
Oneida.....	6	Livingston.....	2
Onondaga.....	10½	Orleans.....	2
Ontario.....	8	Oswego.....	2
Orange.....	8½	St. Lawrence.....	2
Orleans.....	6½	Saratoga.....	2
Oswego.....	12	Wayne.....	2
Otsego.....	8	Total.....	16
Putnam.....	3		

LIST OF FARMERS' INSTITUTE WORKERS, JUNE 15, 1913, TO JUNE 14, 1914, INCLUSIVE

DIRECTOR OF FARMERS' INSTITUTES:
EDWARD VAN ALSTYNE

In Charge of Meetings:

John H. Barron, Nunda.
William Hotaling, Kinderhook.
Roy P. McPherson, LeRoy.
A. J. Nicoll, Delhi.
George A. Smith, Geneva.
Jared Van Wagenen, Jr., Lawyerville.
D. P. Witter, Berkshire.

REGULAR LECTURERS WITH DATES OF SERVICE;

Allen, F. L., Burton, Ohio.....	Jan. 5-31; Feb. 2-14.
Barker, Mrs. Jos. F., Geneva.....	Dec. 5-22; Jan. 12-30; Feb. 5-12, 19-24, 28.
Barron, John H., Nunda.....	June 24; Dec. 1-23; Jan. 5-31; Feb. 2-28; Mar. 5-12.
Bonsteel, F. E., Ashville.....	June 24; Nov. 18-20; Dec. 1-23; Jan. 5-10, 19-31; Feb. 2-12, 23-28; Mar. 5-12.
Curtis, J. G., Rochester.....	Dec. 1-23; Jan. 5-31; Feb. 2-21, 25, 27; Mar. 3-12.
Dexter, Dr. Wm. Hart, Washington, D. C.	Dec. 1-23; Feb. 9-28; Mar. 2-12.
Ennis, J. A., Pattersonville.....	Oct. 15-16; Dec. 5-6; Jan. 14; Feb. 2; Mar. 18.
Gelder, Jay, Glens Falls.....	Dec. 1-6, 17-18, 29-31; Jan. 10.
Gillingham, Geo. L., Moorestown, N. J.	Feb. 2-10.
Hamilton, Dr. M., Delhi.....	Dec. 1-23, 30; Jan. 5-31; Feb. 2-28; Mar. 3-12.
Harrington, Mrs. Ida S., Rochester..	Nov. 14, 17-22; Dec. 1-23; Jan. 5, 20, 24-31; Feb. 2-28; Mar. 2-14, 18.
Hayne, R. A., Adena, Ohio.....	Feb. 16-28; Mar. 3-12.
Heaton, Dr. Lucia E., Canton.....	Dec. 8-23, 30; Jan. 5-10; Mar. 11-12.
Hotaling, William, Kinderhook.....	Sept. 17, 27; Dec. 1-23; Jan. 5-31; Feb. 2-28; Mar. 4-12.
Hyde, Geo. H., Cortland.....	Jan. 19-31; Feb. 25-28.
Katkamier, A. B., Macedon.....	Dec. 5, 19; Jan. 3-31; Feb. 13, 16, 23-28.
Jones, Mrs. Della A., Worcester.....	June 21; July 18; Nov. 17-22; Dec. 1-22, 29-31; Jan. 5-31; Feb. 2-27; Mar. 5-12.
Lewis, Marion, Cameron Mills.....	Nov. 18; Dec. 1-13; Jan. 5-10; Feb. 28.
McPherson, Roy P., LeRoy.....	Aug. 21; Sept. 12; Nov. 15; Dec. 1- 22; Jan. 5-31; Feb. 2-28; Mar. 3-12.
Montgomery, Miss E. E., Silver Creek.	Dec. 21-23; Jan. 5-30; Feb. 2-27; Mar. 3-12.
Nicoll, A. J., Delhi.....	Oct. 15; Nov. 17-22; Dec. 1-23. 29- 31; Jan. 2-30; Feb. 2-28; Mar. 3-12.
Phelps, Mrs. C. S., Canton.....	Dec. 17, 30; Jan. 12-19, 26-31; Mar. 4-12.
Rice, Irving F., Cortland.....	Nov. 18-20; Dec. 18; Feb. 2-9, 25-28; Mar. 6, 19.

Sirrine, F. A., Riverhead.....	Nov. 17-22; Jan. 12-17, 26-31; Feb. 2-7.
Smith, C. D., Trumansburg.....	Dec. 5, 16-18, 29-30; Jan. 5-17.
Trask, R. P., North Wilbraham, Mass.	Dec. 1-23, 31; Jan. 5-31; Feb. 2-24.
Twitchell, Dr. Geo. M., Auburn, Me..	Feb. 25-28; Mar. 4-12.
Van Wagenen, Jared, Jr., Lawersville	Aug. 9, 15, 19, 21, 23, 28; Sept. 3, 15, 26; Oct. 7, 9, 15, 30; Nov. 1, 10, 14, 17, 18; Dec. 1-23, 29-31; Jan. 5-10, 14-17, 27; Feb. 6, 24-27; Mar. 4-7, 11-12, 17-19.
White, C. R., Ionia.....	Dec. 13, 15; Jan. 13-19; Feb. 9-14, 20, 23-28; Mar. 3-14.
Witter, D. P., Berkshire.....	Oct. 24; Nov. 13, 17-22; Dec. 1-23, 30; Jan. 5-31; Feb. 2-20, 25-28; Mar. 2-14, 19.

LECTURERS FROM STATE DEPARTMENT OF AGRICULTURE

- Hon. Marc W. Cole, Chief of Bureau of Cooperation, Albany, N. Y.
 Dr. J. F. DeVine, Consulting State Veterinarian, Goshen, N. Y.
 James D. Edwards, Inspector of Farms, Albany, N. Y.
 Hon. Calvin J. Huson, Commissioner of Agriculture, Albany, N. Y.
 L. F. Strickland, Nursery Inspector Lockport, N. Y.
 B. D. Van Buren, Assistant Chief Horticulturist, Albany, N. Y.
 Charles Stewart, Bee Inspector, Johnstown, N. Y.
 Hon. Harry B. Winters, First Deputy Commissioner of Agriculture, Albany, N. Y.
 W. D. Wright, Bee Inspector, Altamont, N. Y.

LECTURERS FROM STATE COLLEGE OF AGRICULTURE

- M. F. Barrus, Assistant Professor of Plant Pathology, Ithaca, N. Y.
 F. M. Blodgett, Assistant, Department of Plant Pathology, Ithaca, N. Y.
 Geo. W. Cavanaugh, Professor of Chemistry, Ithaca, N. Y.
 Wm. H. Chandler, Professor of Pomology, Ithaca, N. Y.
 E. O. Fippin, Professor of Soil Technology, Ithaca, N. Y.
 M. W. Harper, Professor of Animal Husbandry, Ithaca, N. Y.
 L. M. Hurd, Assistant, Poultry Department, Ithaca, N. Y.
 W. G. Krum, Assistant and Superintendent in Poultry Husbandry, Ithaca, N. Y.
 A. R. Mann, Secretary to the College of Agriculture, Ithaca, N. Y.
 F. B. Moody, Professor of Forestry, Ithaca, N. Y.
 R. S. Moseley, Assistant, Poultry Department, Ithaca, N. Y.
 James E. Rice, Professor of Poultry Husbandry, Ithaca, N. Y.
 H. E. Ross, Professor of Dairy Industry, Ithaca, N. Y.
 T. E. Schreiner, Assistant, Poultry Husbandry, Ithaca, N. Y.
 J. L. Stone, Professor of Farm Practice, Ithaca, N. Y.
 Chas. H. Tuck, Professor of Extension Teaching, Ithaca, N. Y.
 Geo. F. Warren, Professor of Farm Management, Ithaca, N. Y.
 A. E. Wilkinson, Extension Instructor in Vegetable Gardening, Ithaca, N. Y.

LECTURERS FROM NEW YORK AGRICULTURAL EXPERIMENT STATION

- R. D. Anthony, Associate Horticulturist, Geneva, N. Y.
 J. F. Barker, in charge of soil investigations, Geneva, N. Y.
 F. E. Gladwin, Associate Horticulturist, Fredonia, N. Y.
 F. Z. Hartzell, Associate Entomologist, Fredonia, N. Y.
 U. P. Hedrick, Horticulturist, Geneva, N. Y.
 H. E. Hodgkiss, Assistant Entomologist, Geneva, N. Y.
 P. J. Parrott, Entomologist, Geneva, N. Y.
 F. C. Stewart, Botanist, Geneva, N. Y.
 O. M. Taylor, Foreman in Horticulture, Geneva, N. Y.
 L. L. Van Slyke, Chemist, Geneva, N. Y.

LECTURERS FROM STATE COLLEGE OF FORESTRY AND DIVISION OF AGRICULTURE,
SYRACUSE UNIVERSITY, SYRACUSE

Hugh P. Baker, Dean, College of Forestry, Syracuse, N. Y.
M. W. Blackman, Associate Professor of Forest Entomology, Syracuse, N. Y.
F. W. Howe, Director, Division of Agriculture, Syracuse, N. Y.
F. F. Moon, Professor of Forest Engineering, Syracuse, N. Y.
J. W. Stephen, Assistant Professor of Silviculture, Syracuse, N. Y.

LECTURERS FROM STATE SCHOOLS OF AGRICULTURE

H. E. Cook, Dean, State School of Agriculture, Canton, N. Y.
J. R. Dice, State School of Agriculture, Morrisville, N. Y.
J. F. Eastman, State School of Agriculture, Morrisville, N. Y.
F. G. Helyar, Director, State School of Agriculture, Morrisville, N. Y.

LECTURERS FROM UNITED STATES DEPARTMENT OF AGRICULTURE

G. S. De Muth, Washington, D. C.
Geo. W. Harris, Baldwinsville, N. Y.

LECTURERS FROM STATE EDUCATION DEPARTMENT

Dr. E. P. Felt, State Entomologist, Albany, N. Y.
S. L. Hawkins, Albany, N. Y.
Dr. Sherman Williams, Albany, N. Y.

LECTURERS FROM STATE CONSERVATION COMMISSION

Geo. L. Barrus, Forester, Albany, N. Y.
F. A. Gaylord, Forester, Albany, N. Y.
W. G. Howard, Assistant Superintendent of State Forests, Albany, N. Y.
W. S. Warner, Salamanca, N. Y.

LECTURERS FROM NEW JERSEY AGRICULTURAL EXPERIMENT STATION

Alva Agee, Chief of Agricultural Extension Work, New Brunswick, N. J.
A. L. Clark, Assistant in Extension Work, New Brunswick, N. J.
H. R. Lewis, Poultry Husbandman, New Brunswick, N. J.
F. C. Minkler, Professor of Animal Industry, New Brunswick, N. J.
A. J. Farley, Horticulturist, New Brunswick, N. J.

SPECIAL LECTURERS

H. E. Cox, Geneseo, N. Y.
J. Leslie Craig, Ogdensburg, R. F. D., N. Y.
E. H. Dollar, Heuvelton, N. Y.
J. C. Duncan, Lewiston, N. Y.
Jas. A. D. S. Findlay, Salisbury Mills, N. Y.
C. C. Mitchell, Marlboro, N. Y.
Mrs. George E. Monroe, Dryden, N. Y.
Dr. O. S. Morgan, New York City.
Rev. C. S. Tator, Northport, N. Y.
Dr. E. L. Volgenau, Buffalo, N. Y.
John J. Jeannin, jr., West Sand Lake, N. Y.
Mrs. Rose Morgan, New York City.
Miss Jennie C. Jones, Paris, N. Y.
Miss Katherine Mills, Garrattsville, N. Y.

FARMERS' DAYS

As heretofore shown, one-day institutes are most numerous. While it is doubtless true that in this way more people are reached than in the meetings of longer duration although the attendance per session at the former is smaller, yet the criticism is justly made that in so short a period the subjects cannot be thoroughly treated. To meet this criticism six three-day meetings were held, which are known as Farmers' Days. These were really tri-county institutes. The first day was given up to a discussion of matters pertaining to the soil and sources of fertility, the second day to live stock and farm crops and the third to horticulture, or, if it was more of a stock and not particularly a horticultural section, the entire second day to stock, and horticulture and farm crops taken up together on the third. As in previous years one day in a separate meeting was devoted to poultry and one to women's work.

At these meetings the College of Agriculture and the State Agricultural Experiment Station furnished their scientific experts, and the services of some not available for regular work were made use of. These meetings appear to grow in popular favor. The program of the one at Dansville, where the attendance was nearly double that of the previous year, is given below.

FARMERS' DAYS AT DANSVILLE, LIVINGSTON COUNTY, WEDNESDAY, THURSDAY AND FRIDAY, MARCH 4, 5 and 6, 1914, in HIGH SCHOOL BUILDING

In charge of Director Edward van Alstyne.

Local Committee.—J. M. Foster, Newton B. Gorham, Rev. Leo Hofschneider, F. A. Owen, Oscar Woodruff, J. W. Burgess, G. H. Knapp.

Correspondents.—Livingston County, J. M. Foster, Dansville; Allegany County, F. C. Smith, Wellsville; Steuben County, E. F. Gleason, Hammondsport; Wyoming County, S. L. Strivings, Castile.

PROGRAM

WEDNESDAY: FERTILITY DAY

- 9:30 A. M. PRAYER.
N. B. GORHAM—Address of Welcome.
DIRECTOR VAN ALSTYNE—Response.
- 10:00 A. M. DR. TWITCHELL—The Cry of the Soil.
- 10:30 A. M. DISCUSSION.
- 10:45 A. M. DIRECTOR VAN ALSTYNE—Organic Matter in the Soil.
- 11:15 A. M. DISCUSSION.
- 11:30 A. M. MR. VAN WAGENEN—Controlling the Water Supply by Drainage and Cultivation.

- 1:30 P. M. ROUND TABLE.
 2:00 P. M. DIRECTOR VAN ALSTYNE — Sources of Nitrogen.
 2:45 P. M. DISCUSSION.
 3:00 P. M. MR. VAN WAGENEN — Phosphoric Acid and Potash.
 3:45 P. M. DISCUSSION.
 4:00 P. M. DR. TWITCHELL — The Value of Tillage.
 4:45 P. M. DISCUSSION.
-

- 7:30 P. M. MR. HAYNE — America on Horseback.
 MR. VAN WAGENEN — History and Legends of New York State.
-

THURSDAY: LIVE STOCK DAY

- 9:00 A. M. MR. VAN WAGENEN — Demonstration with Living Animals of a Profitable Dairy Cow.
 10:00 A. M. MR. HAYNE — Essentials for Profit in Sheep.
 10:30 A. M. DISCUSSION.
 10:45 A. M. DR. TWITCHELL — Cheap Methods of Pork Production.
 11:15 A. M. DISCUSSION.
 11:30 A. M. MR. VAN WAGENEN — The Principles of Economic Feeding.
-

- 1:30 P. M. MR. HAYNE — Demonstration from Living Animals of a Good Farm Horse.
 2:00 P. M. ROUND TABLE.
 2:30 P. M. MR. HAYNE — The Farmer's Horse.
 3:00 P. M. DISCUSSION.
 3:15 P. M. DR. DE VINE — Diseases of Horses and Cattle.
 4:00 P. M. DISCUSSION.
 4:15 P. M. DR. TWITCHELL — How to Improve Our Domestic Animals.
-

- 7:30 P. M. DR. TWITCHELL — The Coming Man.
 MRS. MORGAN — Folk Songs and Hymnology (Illustrated with Songs).
-

THURSDAY: SPECIAL WOMEN'S SESSIONS
10 A. M.

- MRS. HARRINGTON — Opening Remarks.
 MRS. HARRINGTON — The Choice and Care of Utensils.
 DISCUSSION.
 MRS. MORGAN — The Influence of Music in the Home.
 1:30 P. M.

QUESTION BOX.

- MRS. HARRINGTON — The Development of Our Boys and Girls.
 DISCUSSION.
 MRS. MORGAN — Music as a Factor in Child Life.
-

FRIDAY: SPECIAL POULTRY SESSIONS
10 A. M.

- MR. RICE — Opening Remarks.
 MR. MOSELEY — The Best Type to Breed From.
 DISCUSSION.
 MR. RICE — Rearing Chickens.
 DISCUSSION.

1:30 P. M.

QUESTION BOX.

MR. RICE — Poultry Houses and Equipment.

DISCUSSION.

MR. MOSELEY — Care and Feed for Laying Hens.

DISCUSSION.

FRIDAY: FARM CROP AND HORTICULTURAL DAY

9:30 A. M. DR. TWITCHELL — Fresh Lessons from the Corn Field.

10:15 A. M. DISCUSSION.

10:30 A. M. DIRECTOR VAN ALSTYNE — Potatoes.

11:15 A. M. DISCUSSION.

11:20 A. M. MR. TOAN — Beans.

1:30 P. M. ROUND TABLE.

2:00 P. M. MR. WILKINSON — Market Gardening.

2:30 P. M. DISCUSSION.

2:40 P. M. MR. CHANDLER — Questions Pertaining to Horticulture Answered.

3:30 P. M. MR. STEWART — Plant Diseases.

4:00 P. M. DISCUSSION.

4:15 P. M. DIRECTOR VAN ALSTYNE — Closing Words.

SPEAKERS

W. H. CHANDLER, Ithaca,
New York State College of Agriculture at Cornell University.

DR. J. F. DE VINE, Albany,
Consulting Veterinarian, New York State Department of Agriculture.

MRS. IDA S. HARRINGTON, Rochester,
Farmers' Institute Lecturer.

R. A. HAYNE, Adena, Ohio,
Farmers' Institute Lecturer.

MRS. ROSE MORGAN, New York City,
Farmers' Institute Lecturer.

R. S. MOSELEY, Ithaca,
New York State College of Agriculture at Cornell University.

IRVING F. RICE, Cortland,
Farmers' Institute Lecturer.

F. C. STEWART, Geneva,
New York Agricultural Experiment Station.

LEWIS A. TOAN, Rochester,
Farm Bureau Manager, Monroe Co.

DR. GEO. M. TWITCHELL, Auburn, Me.,
Farmers' Institute Lecturer.

EDWARD VAN ALSTYNE, Kinderhook,
Director of Farmers' Institutes, New York State Department of Agriculture.

JARED VAN WAGENEN, JR., Lawversville,
Farmers' Institute Conductor and Lecturer.

A. E. WILKINSON, Ithaca,
New York State College of Agriculture at Cornell University.

The evening sessions at these meetings were given over to broad ethical topics. The following statement shows location, attendance, etc., of "Farmers' Days" held:

County and Place	Correspondent	Date	Sess.	Attend.	Avg. Per Sess.
Livingston:					
Dansville....	J. M. Foster.....	March 4-5-6	8	2,069	259
Orleans:					
Albion.....	John Bidelman.....	Feb. 24-25-26	8	2,608	326
Oswego:					
Fulton.....	W. H. Pollard....	Dec. 16-17-18	8	1,224	153
St. Lawrence:					
Gouverneur...	Earl Laidlaw.....	Dec. 29-30-31	8	2,015	252
Saratoga:					
Schuylerville..	A. C. Lottridge..	March 17-18-19	8	1,141	143
Wayne:					
Newark.....	E. D. Clark.....	Feb. 25-26-27	8	1,034	129
Total			<u>48</u>	<u>10,091</u>	<u>210</u>

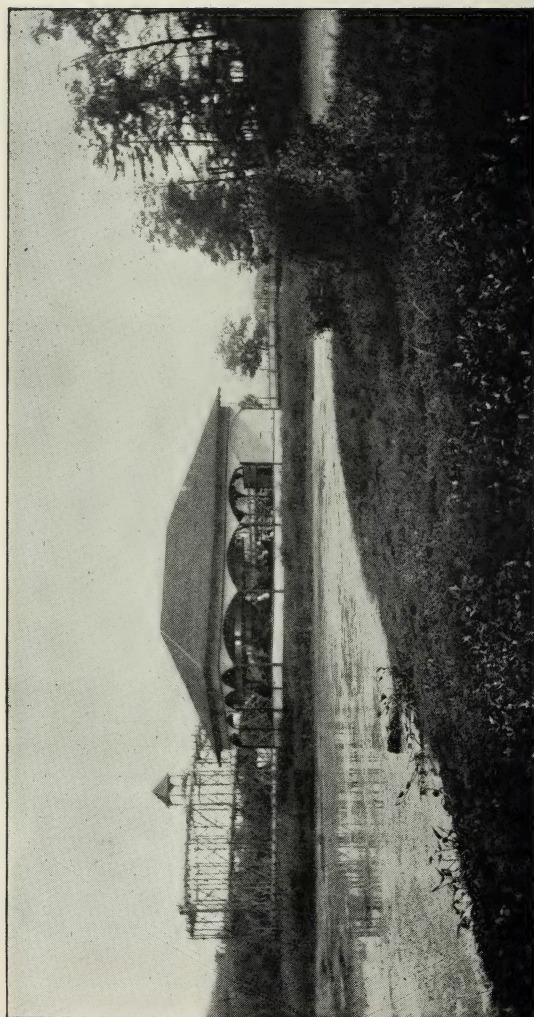


FIG. 258.—ELECTRIC PARK, KINDERHOOK, N. Y., WHERE RURAL LIFE CONFERENCE WAS HELD.

RURAL LIFE CONFERENCES

This work was undertaken on a broader line than ever before attempted by the bureau at the request of citizens of West Coxsackie, Greene county, and Lawyersville, Schoharie county. Similar meetings were held at Electric Park, Kinderhook, and Chatham, Columbia county. Except at Lawyersville — which program is given — the sessions were confined to one day. Not more than one-third of the time was given to strictly agricultural topics, the balance to matters pertaining to the home, the school and the church embraced in the broad theme of citizenship or rural advancement. In all of these meetings the people were requested to pay a portion of the expense in addition to that of the hall.

This was done not only that they might assist in obtaining a rather expensive force and as an evidence of good faith but to assure their real cooperation. This led to establishing the rule that the support of the local school principals, clergy, and rural organizations must be guaranteed, and the ladies of the community must serve a dinner for which they were allowed to charge if they thought best. With the exception of Chatham the attendance was all that could be expected. The very cream of rural folk was in attendance. The meetings were most inspiring to all concerned, and several requests have come for similar ones the coming season. Only lack of funds will prevent all such requests being granted where the above conditions have been filled.

PROGRAM

RURAL LIFE CONFERENCE

Lawyersville, Schoharie County

October 7-8, 1913

OCTOBER 7

EVENING

JARED VAN WAGENEN, JR., Lawyersville., Director — Welcome.

EDWARD VAN ALSTYNE, Kinderhook, Columbia Co. — Response and Outline of Work.

MR. VAN ALSTYNE — Rural Citizenship.

MRS. ROSE MORGAN, New York City — Influence of Music and Song.

[1877]

OCTOBER 8

MORNING

MR. VAN ALSTYNE — Home Grown Feeds for the Dairy.
DR. GEO. F. WARREN, State College of Agriculture, Ithaca — Farm Management.

Women's Conference led by MRS. MORGAN.

AFTERNOON

MR. VAN ALSTYNE — Soil Fertility.
DR. WARREN — Pastures and Meadows.
MRS. MORGAN — Folk Songs.

EVENING

REV. DR. WARREN H. WILSON, New York City — The Rural Church.
MRS. MORGAN — Hymnology.

The place, dates and attendance of the Rural Life Conferences held, follow:

County and Place	Date	Sess.	Attend.	Avg. Per Sess.
Columbia:				
Chatham	Oct. 9	3	187	62
Electric Park	Aug. 23	2	500	250
Schoharie:				
Lawyersville	Oct. 7-8	4	1000	250
Total		9	1687	187

SPECIAL LECTURES

The work done by sending a worker to deliver one or more special lectures in a locality where no regular meetings are held, before granges, farmers' clubs, church societies and other organizations, is proving of great value. The subjects treated have been many, and while in a number of places the attendance was not large — often could not be expected to be so — no more responsive audiences have been met in the state. Frequently, such lectures have been the means of arousing an interest and opening the way for a institute and more extended lines of work. Usually the traveling expenses of the speaker have been borne by the organization receiving the help as in the case of the Rural Life Conferences. This as an evidence of good faith, for many will ask for a speaker from the state if it costs nothing and will do nothing to secure an audience for him after he arrives. Such financial assistance is also necessary in order that more of this and other kinds of work may be done. While an effort is always made to furnish lecturers who are in the vicinity or whose traveling expenses will not be large, it is apparent that these special trips cost relatively more than where a force in geographical order goes from place to place; hence the justice of the community bearing part of the expense.

[1879]

MISCELLANEOUS MEETINGS TO WHICH DEPARTMENT SPEAKERS WERE SENT.

COUNTY AND PLACE	DATE	SESSIONS	ATTEND- ANCE	SPEAKER	SUBJECT
ALBANY:					
Albany.....	Oct. 17, 1913	1	40	Edward van Alstyne.....	Rural problems.
Albany.....	Nov. 1, 1913	1	50	Jared Van Wagenen, jr.....	Home marketing.
Albany.....	Jan. 3, 1914	1	55	Edward van Alstyne.....	Horticulture.
Albany (Orphan Asylum).....	Mar. 28, 1914	1	38	John Jeannin, jr.....	Soil.
Albany (Orphan Asylum).....	April 12, 1914	1	52	John Jeannin, jr.....	Fertility.
Albany (Orphan Asylum).....	April 25, 1914	1	52	John Jeannin, jr.....	Moisture.
Albany (Orphan Asylum).....	May 2, 1914	1	40	John Jeannin, jr.....	Seeds.
Albany (Orphan Asylum).....	May 9, 1914	1	52	John Jeannin, jr.....	Cultivation.
BROOME:					
Binghamton.....	Feb. 19-21, 1914	3	4,800	J. G. Curtis.....	Dairying, fertility, orcharding.
				Mrs. J. F. Barker.....	Home Topics.
Chenango Bridge.....	Nov. 20, 1913	3	160	F. E. Bonsteel.....	Dairying, soil management.
				I. F. Rice.....	Poultry.
Glen Aubrey.....	Nov. 19, 1913	2	75	F. E. Bonsteel.....	Lime, reclaiming farm.
				I. F. Rice.....	Poultry.
Lisle.....	Nov. 18, 1913	2	26	F. E. Bonsteel.....	Fertilizers, dairying.
				I. F. Rice.....	Poultry.
North Sanford.....	May 29, 1914	1	55	A. J. Nicoll.....	Increasing dairy profits.
CATTARAUGUS:					
Leon (picnic).....	Aug. 21, 1913	1	2,500	R. P. McPherson.....	General agriculture.
CHENANGO:					
Bainbridge.....	May 15, 1914	1	30	A. J. Nicoll.....	Cow testing.

CLINTON:	Sept. 3, 1913	1	180	Jared Van Wagenen, jr.	The good farmer. General agriculture.
	June 19, 1913	1	200	Edward van Alstyne.	
COLUMBIA:	June 21, 1913	2	113	Mrs. D. A. Jones.	Domestic economy. Home mixed fertilizers. Grange matters and agricultural citizen- ship. Spraying and fertility.
	Feb. 19, 1914	1	25	Edward van Alstyne.	
	July 28, 1913	1	56	Edward van Alstyne.	
	May 6, 1914	1	25	Edward van Alstyne.	
CORTLAND:	Jan. 2, 1914	2	169	A. J. Nicoll.	Increasing dairy profits.
	Oct. 30, 1913	1	165	Jared Van Wagenen, jr.	Education of the farm boy. Poultry. Dairying, corn.
Apr 18, 1914	1	125	I. F. Rice.		
Sidney Center	Mar. 14, 1914	2	139	A. J. Nicoll.	
DUTCHESS:	Feb. 10, 1914	1	44	Dr. Wm. H. Dexter.	Farm management, demonstration good dairy cow. Tile drainage, lime.
	June 9, 1914	1	75	Alva Agee.	
ERIE:	Sept. 12, 1913	1	80	R. P. McPherson.	Possibilities for better farming by the Indians.
FRANKLIN:	June 18, 1913	1	23	Edward van Alstyne.	Outline and benefits of rural life con- ference.
	Nov. 10, 1913	1	28	Jared Van Wagenen, jr.	Dairying. Rural citizenship.
Broadalbin	Dec. 8, 1913	1	33	Edward van Alstyne.	
FULTON:	Jan. 6, 1914	2	50	Edward van Alstyne.	Dairying.

MISCELLANEOUS MEETINGS TO WHICH DEPARTMENT SPEAKERS WERE SENT — *Continued.*

COUNTY AND PLACE	DATE	SESSIONS	ATTEND- ANCE	SPEAKER	SUBJECT
GENESEE:					
Le Roy	Feb. 16, 1914	1	30	A. B. Katkamier	Growing and marketing small fruits.
Le Roy	April 14, 1914	1	65	Jared Van Wagenen, jr.	The farmer and the country church.
GREENE:					
Freehold	Feb. 27, 1914	1	50	C. C. Mitchell	Agricultural credits and cooperation.
Hunter	Sept. 27, 1913	2	550	Wm. Hotaling	Gardening, and judging vegetables.
JEFFERSON:					
Watertown	Dec. 4, 1913	1	200	Edward van Alstyne	Rural citizenship.
Watertown	Jan. 15, 1914	1	35	Jared Van Wagenen, jr.	Dairying.
LIVINGSTON:					
Avon	Dec. 5, 1913	1	100	A. B. Katkamier	The farm, the grange and the home.
MADISON:					
Cazenovia	Feb. 13, 1914	1	65	A. B. Katkamier	Every farm a wonderworld.
Clockville	April 16, 1914	1	28	D. P. Witter	Alfalfa.
MONTGOMERY:					
Canajoharie	Oct. 15, 1913	1	80	A. J. Nicoll	Cow testing associations.
NIAGARA:					
North Ridge	Oct. 25, 1913	2	320	Edward van Alstyne	Farm bureau situation.
Sanborn	Nov. 29, 1913	1	300	O. M. Taylor	Horticulture.

ONEIDA:	Boonville.....	Feb. 18, 1914	1	100	Jared Van Wagenen, jr.....	Maintaining fertility.
	Paris Hill.....	Sept. 26, 1913	1	100	Jared Van Wagenen, jr.....	Live stock judging demonstration.
	Rensen.....	Feb. 17, 1914	1	23	Jared Van Wagenen, jr.....	Maintaining fertility.
	Rome.....	Feb. 16, 1914	1	187	Jared Van Wagenen, jr.....	Maintaining fertility.
	Utica.....	Mar. 20, 1914	1	30	A. J. Nicoll.....	Increasing dairy profits.
ONONDAGA:	Utica.....	Mar. 27, 1914	1	110	Jared Van Wagenen, jr.....	Citizenship.
	Syracuse.....	July 11, 1913	1	25	Edward van Alstyne.....	Rural citizenship.
	Syracuse.....	Nov. 13, 1913	1	75	D. P. Witter.....	Cooperation.
	Warners.....	Jan. 14, 1914	3	190	Jared Van Wagenen, jr.....	Education of the farm boy, dairying.
	Warners.....	Jan. 14, 1914	3	190	John A. Ennis.....	Demonstration of dairy cow, dairying.
ONTARIO:	Lewis.....	April 10, 1914	2	103	D. P. Witter.....	Alfalfa and commercial fertilizers.
	Scotchtown.....	Aug. 15, 1913	1	17	Jared Van Wagenen, jr.....	The good farmer.
OSWEGO:	Hartwick.....	Dec. 26, 1913	2	105	R. A. Hayne.....	Horses.
	Morris.....	Aug. 9, 1913	1	196	Geo. M. Twitchell.....	Corn.
OTSAGO:	Pierstown.....	July 18, 1913	1	96	Mrs. J. F. Barker.....	Home topics.
	Pierstown.....	July 18, 1913	1	96	H. B. Winters.....	New York State agriculture.
	Pierstown.....	July 18, 1913	1	96	J. C. Duncan.....	Sheep husbandry.
PUTNAM:	Mohegan Lake.....	Sept. 15, 1913	1	100	Jared Van Wagenen, jr.....	The good farmer.
	Mohegan Lake.....	Sept. 15, 1913	1	100	Jared Van Wagenen, jr.....	The good farmer.
RENSSELAER:	Berlin.....	Sept. 17, 1913	2	225	Wm. Hotaling.....	Fertility, cultivation.
	Center Brunswick.....	May 19, 1914	1	60	Edward van Alstyne.....	Rural citizenship.
	Nassau.....	Mar. 16, 1914	1	42	Wm. Hotaling.....	Grapes and general agriculture.
	Nassau.....	April 14, 1914	1	14	Wm. Hotaling.....	Grapes, orcharding, poultry.
	Troy.....	May 12, 1914	1	400	John Jeamin, jr.....	Children's gardens.

MISCELLANEOUS MEETINGS TO WHICH DEPARTMENT SPEAKERS WERE SENT—*Concluded.*

COUNTY AND PLACE	DATE	SESSIONS	ATTEND- ANCE	SPEAKER	SUBJECT
ST. LAWRENCE: Winthrop.....	Mar. 21, 1914	1	55	A. J. Nicoll.....	Cow testing associations.
SARATOGA: Ballston Lake.....	Jan. 16, 1914	1	85	Jared Van Wagenen, jr.....	Maintaining fertility.
Charlton.....	Aug. 21, 1913	1	150	Jared Van Wagenen, jr.....	Citizenship.
Saratoga.....	Aug. 9, 1913	1	300	Edward Van Alstyne.....	Rural citizenship.
SCHOHARIE: Jefferson.....	Nov. 14, 1913	1	28	Jared Van Wagenen, jr.....	Maintaining fertility.
Jefferson.....	Dec. 18, 1913	1	25	Jay Gelder.....	Horse breeding, and dairy cow demon- stration.
Jefferson.....	Jan. 7, 1914	1	25	R. S. Moseley.....	Poultry.
Jefferson.....	Jan. 20, 1914	2	14	Mrs. I. S. Harrington.....	Home topics.
Lawyersville.....	Jan. 17, 1914	1	80	Jared Van Wagenen, jr.....	New York State Agriculture.
SCHUYLER: Catherine.....	April 10, 1914	1	40	D. P. Witter.....	Concrete construction.
SULLIVAN: Narrowsburg.....	Jan. 24, 1914	2	169	R. P. Trask.....	Poultry.
TIOGA: Berkshire.....	Oct. 24, 1913	1	50	D. P. Witter.....	General.
Berkshire.....	Nov. 14, 1913	1	100	Mrs. I. S. Harrington.....	Home topics.
Newark Valley.....	April 1, 1914	1	64	D. P. Witter.....	Concrete construction.
Owego.....	May 2, 1914	1	13	D. P. Witter.....	Alfalfa.

ULSTER:					
Mt. Marion.....	Oct. 15, 1913	1	85	Jared Van Wagenen, jr.....	The good farmer.
WARREN:					
Glens Falls.....	May 14, 1914	1	65	John Jeannin, jr.....	Community gardens.
WASHINGTON:					
Hudson Falls.....	Aug. 28, 1913	1	500	Jared Van Wagenen, jr.....	Babcock test, and judging.
WAYNE:					
Ontario.....	Feb. 21, 1914	1	75	Mrs. E. H. Forristall.....	Poultry.
Wolcott.....	Nov. 15, 1913	1	60	R. P. McPherson.....	Apples.
WESTCHESTER:					
Lincoldale.....	Dec. 19, 1913	1	225	A. B. Katkamier.....	Every farm a wonderland.
Lincoldale.....	Feb. 9, 1914	1	205	Dr. Wm. H. Dexter.....	Dairying.
WYOMING:					
Attica.....	July 23, 1913	1	135	Dr. E. L. Volgenau.....	Diseases of domestic animals.
YATES:					
Dundee.....	Feb. 20, 1914	1	100	C. R. White.....	Marketing farm crops.
Dundee.....	Feb. 25, 1914	1	65	J. G. Curtis.....	Soils and fertilizers.
Dundee.....	Mar. 14, 1914	1	140	Mrs. D. A. Jones.....	Home topics.
Dundee.....	Mar. 26, 1914	1	67	D. J. Crosby.....	Sanitary engineering.
Glenora.....	Dec. 30, 1913	1	40	D. P. Witter.....	Concrete construction.
Totals.....		114	16,754		

FARM EXTENSION OR "FOLLOW-UP" WORK

This work has been carried on as heretofore except in the counties where farm bureaus have been established, in which cases the work has been turned over to the men in charge. The Bureau of Farmers' Institutes has assisted them in several counties, as noted under the head of "Farm Bureaus." This work suffered a serious loss in the person of F. E. Gott, of Spencerport, who died suddenly July 21, 1914, as he was making preparations to leave home for work of this character along the line of the Northern Central Railroad. The work he had contemplated was ably taken up and carried out by D. P. Witter, in addition to that already planned by him. Mr. Witter spent altogether approximately 175 day in the work, visiting 347 farms, giving advice and assistance along all lines of general agriculture. He advised regarding the laying out of 20 drainage systems; with reference to orchard problems, 120; alfalfa, 48; meadow and pasture improvement, 10; soy beans, 8, and a great number of times with regard to miscellaneous farm problems. Some especially interesting illustrations of such work are given in the following pages:



FIG. 259.—WELL-LOADED APPLE TREE IN ORCHARD OF W. W. ASPELL, MILO, N. Y.

[1886]

NUMBER 1

Advice has been given the owner of this orchard (Fig. 259), W. W. Aspell, Milo, Yates county, during the years of 1911, 1912 and 1913 and early in the spring of 1914. The improvement in the orchard has been quite wonderful and the financial condition of the owner has gone from zero up to very good. He is now helping his neighbors to do better work in their orchards. In 1911 he borrowed a sprayer. His farm work was done with a small, poor pair of mules. In 1912 and 1913 he used a barrel sprayer of his own. He now owns a power sprayer, has five good large horses and is in comfortable circumstances.

NUMBER 2

It was a question if this old orchard on the farm of P. Roff, Glenora, Yates county, would respond to treatment. It was neglected and unproductive until the spring of 1913, when it was plowed and sprayed. In the fall of 1913 many props were needed under several of the trees to enable them to carry their load of fruit. The fruit was thinned on many of the trees and they give promise of a full crop in 1914.



FIG. 260.—SCENE IN ORCHARD OF P. ROFF, GLENORA, N. Y.

NUMBER 3

This orchard belongs to Harry Roff, of Glenora, Yates county, and has been under the supervision of Messrs. Witter and Gott. The orchard was in sod, unproductive, and had not been sprayed until the spring of 1911. Since that time it has been sprayed and cultivated, being given excellent care. The fruit has been thinned on most of the trees and the Baldwins and Greenings have been giving heavy annual crops. In the year 1913, the trees gave an average of five barrels of good apples to the tree. The cover crop of vetch, barley and cow-horn turnip, was eighteen inches high when the photograph was taken, September 15, 1913. A heavy crop of apples is promised for the year 1914.



FIG. 261.—SCENE IN ORCHARD OF HARRY ROFF, GLENORA, N. Y., SHOWING COVER CROPS AND APPLES.

NUMBER 4

Officials of the Northern Central Railway, representatives of the State Agricultural Department, and farmers, inspecting the apple orchard of Thomas Whitney, Flint, Ontario county, September 15, 1913. This is one of a number of orchards along the N. C. R. R., which have been under the inspection of Messrs. Witter and Gott for the past three years. This orchard of 260 trees yielded a crop of apples in the off year of 1913 of more than 2,000 barrels, which were sold for over three dollars per barrel.



FIG. 262.—GROUP OF RAILROAD OFFICIALS, REPRESENTATIVES OF THE STATE DEPARTMENT OF AGRICULTURE, AND FARMERS IN THE ORCHARD OF THOMAS WHITNEY, FLINT, N. Y.

NUMBER 5

A field of rye and vetch was sown on abandoned land on the farm of Mrs. Alice Faulkner, Barton, Tioga county. The vetch was inoculated with cultures received from the State College of Agriculture, Ithaca. The field was photographed June 20, 1913, the vetch being fifty inches tall. Advice was given on this farm by Mr. Witter.

NUMBER 6

The accompanying photograph (Fig. 265) of farm in Tioga county shows Medium Green soy beans over four feet high and well podded, grown in corn. The yield was 31,200 pounds of fodder to the acre, the beans making about 16 to 18 per cent. of the weight. The beans, being very rich in protein, help materially to balance the ration for milk production. Six quarts of good seed corn and four quarts of soy beans were mixed together and planted to the acre.



FIG. 263.—VETCH GROWN IN RYE ON FARM OF MRS. ALICE FAULKNER, BARTON, N. Y. LENGTH, 50 INCHES.



FIG. 264.—FIELD OF VETCH AND RYE ON MRS. FAULKNER'S FARM. THIS LAND HAD BEEN PRACTICALLY ABANDONED FOR AGRICULTURAL PURPOSES.



FIG. 265.—CORN AND SOY BEANS RAISED BY D. P. WITTER IN 1910. 31,200 POUNDS PER ACRE.



FIG. 266.—TWELVE-ACRE FIELD OF ALFALFA ON FARM OF H. K. CRANDALL, CHEMUNG, CHEMUNG COUNTY, STARTED UNDER THE DIRECTION OF MR. WITTER IN 1912. IT GAVE THREE EXCELLENT CROPS LAST YEAR AND IS IN SPLENDID CONDITION THIS YEAR.



FIG. 267.—TEN-ACRE FIELD OF ALFALFA GROWING IN TIOGA COUNTY.

The following is an extract from daily report of Mr. Witter, showing results in "Follow-Up" work on farm at Himrods, Yates county, visited by him, and where his advice was followed:

"This orchard was more infested with scale than any I ever saw. The trees were quite large. Lime-sulphur spray had been used, but not very successfully. During the years 1912 and 1913 scale-cide was used. The scale continued to spread. Last year the apples were badly spotted with insects. This year I persuaded the owner to use lime-sulphur under my direction. He did so and the work was very thoroughly done. He is now thinning his apples and has occasion to work on the trees and observe them closely. So far, he has not found more than half a dozen apples with scale on, and in each case only a single scale on the apple. I never saw better work. I advise cutting off the limbs where scale is found — they are so very few — hoping to exterminate the pest. The owner, who is a young man, was very much discouraged last year over his work, but is now greatly encouraged. The results obtained in this instance are due to thorough and timely work."



FIG. 268.—TOP AND ROOTS OF TIMOTHY GROWN ON FARM OF FRED LOUNSBERRY, LOUNSBERRY, N. Y. THIS SHOWS WHERE NITRATE OF SODA WAS USED AT THE RATE OF 100 POUNDS AN ACRE, AND WHERE IT WAS NOT USED. WHERE THE NITRATE WAS APPLIED THE INCREASED ROOT GROWTH CORRESPONDS WITH THE INCREASED GROWTH OF TOP, THIS MAKING A MUCH HEAVIER SOD TO TURN DOWN, THEREBY INCREASING THE ORGANIC MATTER IN THE SOIL. THE GRASS WAS AT LEAST THREE TIMES AS HEAVY AS WHERE NO NITRATE WAS USED.

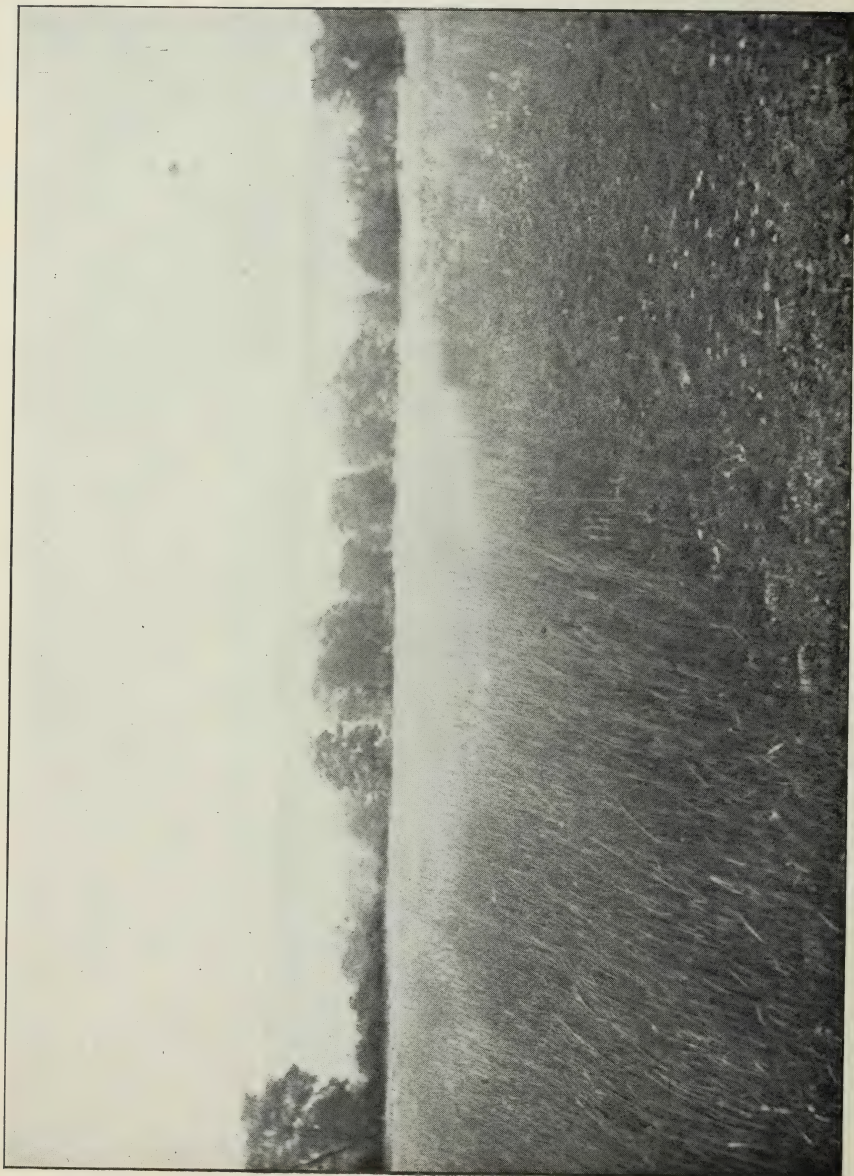


FIG. 269.—FIELD OF TIMOTHY ON FARM OF F. C. ROBINSON, LOUNSBERRY, TIOGA COUNTY, N. Y. THIS FIELD SHOWS THE VALUE OF LIME ON GRASS IN THE SUSQUEHANNA VALLEY. BURNED LINE WAS USED BEFORE SEEDING, AT THE RATE OF ONE TON AN ACRE. THIS IS THE THIRD YEAR IN GRASS. WHERE LINE WAS USED THE TIMOTHY WILL YIELD ONE TON AN ACRE; WHERE IT WAS NOT APPLIED, THERE IS NOTHING BUT WEEDS ON THE GRASS.

B. D. Van Buren, on his farm at Kinderhook, Columbia county, planted 18 acres of soy beans, another promising legume. His soil is naturally light and dry, and previous to his occupancy of the farm it needed humus and available fertility. The season was exceptionally dry, and a killing frost occurred on the night of September 14. Many common beans were grown in the community on similar land, the yield per acre not running beyond six or eight bushels. Mr. Van Buren gives the details, which speak well for this plant, under favorable conditions:

"Soy beans are apparently more thrifty in growth than field beans; yield about the same number of bushels per acre; are as easily harvested and have for the past few years sold at a good price, approximately the same as field beans. The grain is almost exclusively used here for seed purposes, and it is not yet known what would be the food price of these if put upon the market for other purposes.

Some varieties are very thrifty, making a good growth of top, and if cut and cured green a large amount of fodder is secured which is of as much feeding value as alfalfa hay. Early Ogamman (Collson's) and Ito San are two of the best early beans for grain. Hollingbrook, Roosevelt, Heberlandt and Medium Green are all very similar as to habits and time of ripening, and I believe they are among the best tested for New York State conditions. Sable and Wilson are the two most promising from a fodder standpoint, of which Wilson is the stronger grower. Practically no seed of these varieties matured this year. Wilson was from two to three feet high at the time of killing frost and yet growing; Sable eighteen to twenty-five inches high at the same time.

All varieties not ripe were killed by frost of September 9, 1913. The early varieties had matured a crop of beans at that time of from six to eight bushels per acre. The later varieties were only partially mature and the yield was greatly reduced. The year previous, on this same type of land, Medium Green produced at the rate of fourteen bushels of seed to the acre."

VARIETY TEST OF SOY BEANS PLANTED JUNE 10, 1913

Hollingbrook.— July 29, strong, sturdy grower, heavy stalk not yet branching, no blossoms; August 23, strong, vigorous, upright, foliage green, not yet beginning to form seed, some blossoms yet showing many half formed pods;

September 15, seed partly formed, upright, similar in growth to Medium Green, branches well above ground, could be cut with a mower or reaper, apparently carrying more pods than Medium Green, some seed will mature and would probably mature all of its seed in an ordinary year, twenty to twenty-two inches high.

Auburn.—July 4, blossoms showing, looks more like peas than soy beans; July 20, pods with immature peas or beans in at this time; July 29, tops dying, seed matures; August 29, vines starting from bottom and making another growth; August 23, second growth from bottom full of green pods and blossoms, a queer plant; Sept. 15, apparently worthless, more like peas than soy beans, might do better planted early and might stand pasturing as it sprouted and blossomed twice after first growth matured.

Early Black.—July 20, dwarf, sturdy, vigorous growth; July 28, no blossoms; August 8, buds showing with an occasional blossom, dwarf heavy foliage of dark bluish green, colors very similar if not identical to Ebony; August 23, full blossom with many partly formed pods; September 15, twelve to eighteen inches high, branches close to ground, seed partly formed, will apparently mature.

Ebony.—Apparently same variety as Early Black.

Wilson.—July 20, vigorous grower, upright habit, dark green foliage, slender stems; August 8, no blossoms; August 22, one of the most vigorous varieties beginning to show blossoms at this time, apparently a mixture of two strains almost identical in habits, some plants covered with brown hairs and have lavender blossoms, others with light green hairs and white blossoms, the latter slightly taller in growth and stems, not so heavy; September 15, twenty to thirty-six inches or more in height, slender grower, fine stems and many leaves, many plants with a distinct twining habit and many individual plants can be found over three feet tall, will hardly mature seed. Probably best variety tested for curing for hay.

Medium Green.—September 15, twelve to twenty inches high, upright grower, branching high enough from ground to be cut by mower or reaper, will ripen seed and is one of the most vigorous growers and one of the best for main crop.

Ogaman.—From Collson, Elmira, N. Y. July 20, much more vigorous than some varieties received from United States Department, and probably different, though similar in many ways; no blossoms. July 29, full blossom, some branches near ground, medium heavy stems, no pods, good vigorous foliage; August 8, out of blossom, most of pods formed, fair height, one of the most promising early varieties; August 12, leaves yet green, pods well filled with beans; September 15, ten to fifteen inches high, ripe, fit to harvest for past ten days; beans large in size and among best of early varieties; vines hold beans two months after ripening with but little shelling. A large brown seed and good yielder of seed; might have to be pulled, as many pods produce very close to ground.

Ogaman.—United States Department, July 20, leaves slightly affected with a leaf blight because of dry weather (only variety tested showing a foliage weakness), in full blossom at this date; July 29, apparently finished growth, pods well formed, foliage shrivelling, no branching; August 8, earliest variety, in full pod; September 15, ten to twelve inches high, ripe seed shelled out as soon as plant ripened previous to September 15.

Buckshot.—July 20, very vigorous grower, seed being very large it was given a lighter seeding than other varieties, occasional blossoms, heavy coarse foliage; July 29, knee-high, apparently mixed, as some plants show blossoms and others show no sign of blossoms, row most thrifty in test at this time; August 8, mostly in full bloom, very vigorous; August 22, apparently at least two varieties mixed in the planting, some plants being in full pod, others beginning to blossom; September 15, apparently at least three varieties in this sample, ranging from twelve to twenty-five inches high, and from among the earliest (which is very dwarf) to a late variety that is strong, vigorous and well branched and bearing a good crop of large black seed that will mature.

Sable.—July 20, dwarf grower, vigorous, dark green foliage; July 29, no blossoms showing at this time, but vigorous; August 8, no blossoms, not yet so tall as Roosevelt, Ogaman, Buckshot and some others. Similar in growth to Early Black and Ebony, but no blossoms, and slightly larger. August 22, beginning to blossom; September 15, eighteen to twenty-five inches high, late, seed just beginning to form, stems rather fine, slightly inclined to vine, uniform in growth, would not mature a crop of seed this year, but would rank next to Wilson as a producer of fine fodder.

Roosevelt.—July 20, vigorous, upright growth, light green leaf, very promising; July 27, no blossom; August 8, beginning to blossom, as vigorous as any if not the most vigorous variety grown; September 15, fifteen to twenty inches high, upright, similar in growth to Medium Green. Seed about the same stage of maturity, possibly a few days later and a little more vigorous in growth.

Elton.—July 20, seed was poor, a light stand resulting, plant medium in height with heavy dark green leaf; July 29, rather dwarfish, branching low down, some blossoms; August 8, full blossom, some pods, dwarfish, much branched, fine stems; September 15, twelve to fifteen inches high, branched low down and bearing seed very close to ground, seed well formed and will mature in good condition. A good seed production, but because of habit might be difficult to harvest unless pulled by hand.

Merke.—July 20, dwarf in habit, moderately heavy foliage; July 29, some blossoms; August 8, full blossom, pods beginning to show dwarf with small leaves that are very plentiful; September 15, twelve to eighteen inches high, apparently two strains in this sample, one now ripe, the other with seed partly formed, fine slender stems, not promising.

Cherme.—July 20, slender grower, small leaf; July 29, in full bloom and branching near ground; August 8, yet growing and blossoming with small fine stems; September 15, eight to twelve inches high, small in plant and foliage and holds all leaves when beans are ripe. Being very dwarf, rows might be planted close together and might be a good producer of seed on some land if it could be harvested by machinery.

Mikado.—July 20, slender, upright grower, light green foliage, variety rather poorly located as to soil; July 29, no blossoms; August 8, a few blossoms, vigorous in growth; September 15, ten to fifteen inches, dwarfish, seed partly formed, short, stiff upright stems not branching; fairly well loaded with pods.

Heberlandt.—July 20, a very vigorous grower; July 29, not so tall as some, foliage good but a little thin, no blossoms; August 8, no blossoms; September 15, fourteen to twenty-four inches tall, vigorous, seed partly formed, may not ripen, habit of growth similar to Medium Green, a few days later, possibly slightly more vigorous than Medium Green.

Ito San.—July 20, occasional blossoms, moderately vigorous, not so high as Ogaman from Collson; July 29, dwarfish, full of blossoms and branching; August 8, pods partly formed, a uniform vigorous grower; September 15, ten to sixteen inches high, leaves yellow, fit to cut, branches out too close to ground to cut with reaper or binder; apparently one of the best producers of seed, possibly hard to harvest.

Jet.—July 20, dwarf grower, moderately vigorous; July 29, good foliage, no blossoms; August 8, an occasional blossom showing, very dwarfish; September 15, twelve to twenty inches high, slender, upright grower, pods forming close to ground, seed partly formed, will apparently mature.

Mammoth Yellow.—July 20, medium height and foliage, no blossoms; August 8, occasional blossoms, not so tall or vigorous as many; September 15, seed partly formed; will apparently mature most of seeds; pods high enough from ground so that they could be mowed with mower; possibly not true to name, as this variety has the reputation of being a late maturing one.

Mongol.—July 20, vigorous, upright grower, good foliage; July 29, medium to good height, good grower, no blossoms; August 8, in almost full bloom, upright, not branching, vigorous; September 15, twelve to sixteen inches high, seed well formed, will apparently mature, pods on upright stems not very vigorous, but promising.

Four farms were visited by J. A. Ennis; four by B. D. Van Buren; three by C. R. White; two by A. J. Nicoll; two by James A. D. S. Findlay, and one each by J. H. Barron and William Hotaling.

Two bushels of vetch, one New York grown and the other not, were sent to the Adirondack Stock Farms, Mr. Jay Gelder, manager, Glens Falls, N. Y., two to M. E. Chubbuck, Farm Bureau Manager, Herkimer, N. Y., and one bushel to George Cary, Gansevoort, N. Y., the idea being to have this promising legume tried out under farm conditions widely separated, yet all at rather high elevations, in order that the workers may be in a position to give actual facts to New York farmers. Reports of the several gentlemen follow.

REPORT OF MR. CARY ON THE GROWTH OF VETCH

We sowed one-half of the seed about the first of August in a very heavy growth of corn, on a good sand loam. The weather was very dry and not a very good stand secured. The balance of seed was sown the last of September after the corn was cut, the ground being disked and well fitted. This last sowing came up thick and more even but did not winter so well and did not make so much growth in the spring.

Both lots were plowed under for late potatoes the first of June. In small spots where the first sown did not winterkill there was all that could possibly be turned under.

REPORT OF MR. GELDER ON THE GROWTH OF VETCH

It is a pleasure for me to report that the vetch grown from seed which you furnished us last year was a decided success in every respect. The most of it was sown about the middle of September, some a little later. It did not get a very good start in the fall, but this spring it came on beautifully. I was unable to see any difference in seed grown locally and that from out of the state. There was an abundance of nodules but must confess I could not see any difference where inoculated. Accompanying photo shows the density and height of one piece, which was sown on rather light sandy soil, but well supplied with stable manure. This was cut green and fed to the horses. They relished it very much. Unfortu-



FIG. 270.— VETCH AND RYE GROWN ON ADIRONDACK STOCK FARMS,
GLENS FALLS, N. Y.

nately we neglected to measure off the strip and weigh it, so cannot state exactly what the yield of green feed per acre was, but it was repeatedly estimated by good judges at about four tons.

We sowed a small plot on three different farms, and on soils varying from very light sand to heavy white clay. The best success was on sandy soil, fairly well supplied with stable manure.

I was so well pleased with the experiment that I have sowed a large acreage with oats, intending to cut for soiling during the summer, and shall sow thirty to fifty acres this fall to use as soiling crop for growing colts next spring, as the crop is suitable for green feed from four to six weeks and the part cut early will produce the second growth. Coupled with the large amount of protein it contains, its palatability makes it one of the most valuable soiling crops of which we know.



FIG. 271.—ALFALFA GROWN ON ADIRONDACK STOCK FARMS, GLENS FALLS, N. Y.

The accompanying photograph shows alfalfa grown on the Adirondack Stock Farms, Glens Falls, by Mr. Jay Gelder, in accordance with directions contained in Circular No. 16 of this Department.

REPORT OF MR. CHUBBUCK ON THE GROWTH OF VETCH

Mr. Chubbuck reports that the seed received from the Department was distributed to eight different men. He also reports that a considerable quantity was purchased and sown by other farmers in the county. In every case the vetch is reported as doing well. On one field near Herkimer where the vetch was sown at the rate of a half-bushel to an acre with one bushel of rye it made a fine growth. This field was pastured and then plowed under. On one field where the crop of rye and vetch were left to be harvested, the latter is five feet high. All the experiments emphasized that it should be sown in good season to do the best the following spring. So satisfactory were these experiments that a large number of farmers have expressed themselves as intending to sow vetch this coming fall. Five fields of oats and vetch sown in the spring of 1914 are now under Mr. Chubbuck's observation.

Another feature of this work commenced in the season of 1912-1913 was sending a special lecturer to Jewish farmers. This was done at the request and through the aid of J. W. Pineus, Secretary of the Federation of Jewish Farmers of America. Many of these farmers do not speak English. Nearly or quite all of them are entirely ignorant of the foundation principles of agriculture. They do not readily affiliate with other peoples, yet in several sections of the state they are becoming quite an important agricultural factor. To give them their just proportion of assistance, Mr. John A. Ennis and Mr. A. B. Katkamier were sent to the following meetings:

County	Place	Date
Ulster.....	Kerhonkson.....	Dec. 15
Ulster.....	Ellenville.....	Dec. 16 (afternoon)
Ulster.....	Greenfield.....	Dec. 16 (evening)
Sullivan.....	Parksville.....	Dec. 17
Sullivan.....	Ferndale.....	Dec. 18 (afternoon)
Sullivan.....	Monticello.....	Dec. 18 (evening)

Much of the instruction had to be done through an interpreter. Mr. Ennis on a previous visit had become acquainted with many of these men and obtained their confidence, hence they were very ready to receive such instruction as he and his associate could bring. Mr. William Hotaling visited another such colony located

in Rensselaer county on March 16 and gave a lecture on various stages of agriculture, with particular emphasis on grape growing. The spring previous Mr. Hotaling had been there and assisted in the purchase of the vines and instructed them in the manner of setting out and the cultural methods. Such assistance and instruction prevented some very serious mistakes and consequent financial loss, and in spite of the fact that the roads were filled with snow these men were eager to meet him and appointed a day when he should come to them again and go over the ground and give them personal instruction. This was done on April 14.

The purpose of all this work is to bring the institutes in close touch throughout the entire year with the farmers of the state. Where there are no organized farm bureaus there is no other way that this can be done. The increasing number of calls for such work bears ample testimony to its practicability and usefulness.

COW TESTING ASSOCIATIONS

We point with pride to the work accomplished in this direction. At the completion of the year, June 14, New York had thirty-three associations. This, we believe, is more than any other state in the Union. More important than numbers is the fact that these associations are nearly or quite all thoroughly organized.

Four associations which have gone out of existence during the year did so chiefly because they had too loose an organization, three being organized on the dollar-per-cow plan. This becomes a source of uncertainty in income, many dairies changing their number of cows from time to time, and in nearly every case the sum received was insufficient to pay the tester a wage sufficient to properly compensate him. None are now organized except on the basis of two dollars per day for the tester. This insures him fifty-two dollars per month if he works full time; a competent man cannot be secured for less. A man is not expected to test more than thirty cows in a day. Should the dairy be larger the owner must furnish him sufficient help to enable him to properly complete his work. It is questionable in the majority of cases if the dairyman himself can do this work for less than two dollars per month. Lack of oversight has been another cause of failure. In many counties this is being splendidly supplied by the farm bureau men. Representatives of the Bureau of Farmers' Institutes have met with the associations in public meeting at the following places:

County and Place	Date	Sessions	Attendance
Chautauqua:			
Frewsburg.....	Feb. 2, 1914	2	55
Jefferson:			
Antwerp.....	Dec. 5, 1913	1	40
Watertown	Dec. 6, 1913	1	40
Otsego:			
Morris.....	Dec. 23, 1913	1	46
Washington:			
Hartford	Jan. 27, 1914	1	170

The two associations which received financial help from the state are both dead. This assistance was promised by a former administration and the present one felt morally bound to furnish it. These failures confirm the present policy that an association

which is not able to finance itself after receiving abundant help to organize is too weak ever to be worth while.

The success of the work is mainly due to the efforts and untiring work of A. J. Nicoll and John A. Ennis. The former spent 145 days in this work during the year; the latter 85. Frank L. Gregory, of Gilbertsville, Otsego county, gave material aid in that county and the nearby districts. All these men directly represented the Bureau of Farmers' Institutes, and they would have come far from realizing what they have, except for the aid of the farm bureau men. The work is carried on in the following manner:

In all the dairy counties the subject of cow testing associations is brought up in the institutes, sometimes by special addresses, at other times through discussions. In an organized county the farm bureau men are present and after the meeting look over the situation and make a survey of the territory. If the way seems clear and the prospect good, and they request it, one of the above gentlemen is sent into their county. Together they go over the ground and usually there is little difficulty in forming an association. This more than doubles the efficiency of the state representative.

In connection with Farm Bureau Manager M. E. Chubbuck, of Herkimer County, three associations have been formed; with Farm Bureau Manager E. H. Forristall, Cortland County, three formed; with Farm Bureau Manager H. E. Bowen, Wyoming County, three formed; with Farm Bureau Manager S. A. Martin, Onondaga County, two formed; with Farm Bureau Manager G. W. Bush, Oneida County, two reorganized; with Farm Bureau Manager F. C. Smith, Allegany County, one formed; with Farm Bureau Manager G. P. Scoville, Chemung County, one formed; with Farm Bureau Manager F. H. Lacy, Dutchess County, one formed; with Farm Bureau Manager C. S. Phelps, St. Lawrence County, one formed; with Farm Bureau Manager H. B. Rogers, Chautauqua County, two reorganized; with Farm Bureau Manager F. E. Robertson, Jefferson County, two reorganized.

Great difficulty has been experienced in securing efficient testers. The Federal Department of Agriculture has supplied a list of men seeking such positions. Our secondary schools of agricul-

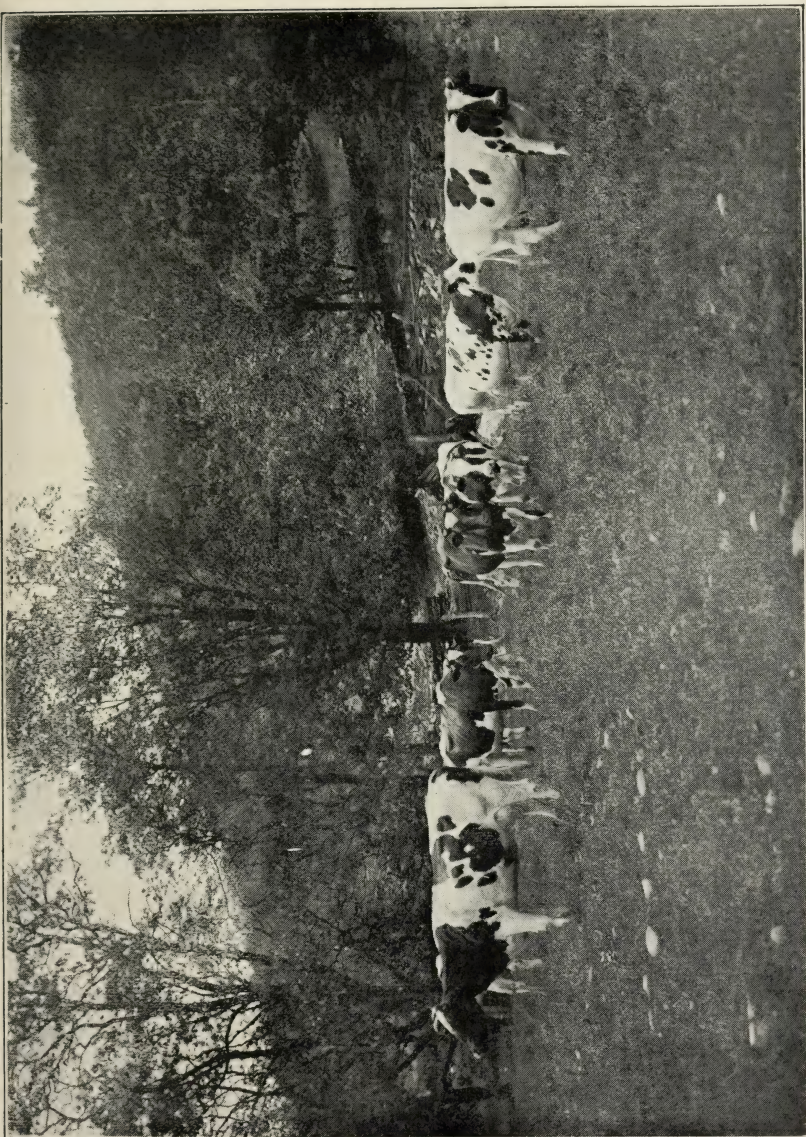


FIG. 272.—HERD OF W. L. TERRY, WALTON, DELAWARE COUNTY. PURE-BRED HOLSTEIN CATTLE IN THE DELHI COW TESTING ASSOCIATION.

ture have been our chief source of supply. At the request of Director W. J. Wright of the State School of Agriculture at Alfred, Mr. Ennis spent nine days at that institution giving special instruction to a class of young men all of whom have, or will at the completion of their school year, take positions as testers.

Twenty-two dairymen are having advanced registry work done in their associations. This reduces the cost of such work materially, there being no traveling expenses to pay. Unquestionably, when the situation is understood there will be a material increase in the number of wide-awake farmers who will have efficient testing and advanced registry work done through the medium of the cow testing associations. Satisfactory arrangements with the associations of the different breeds have not been quite completed relative to the carrying on of this work, but with negotiations under way there is little doubt but such arrangements will be perfected shortly, enabling the carrying out of the work to the mutual satisfaction of both the breeders and herd associations.

The entire cost of the cow testing association work to the Bureau of Farmers' Institutes, including the final computation of the testers' books for associations whose year of work has been completed, amounted to approximately \$2,500 with no direct appropriation. This is a most practical form of cooperation and is doubtless the best if not the only way to assist farmers to produce dairy products at a profit, enabling them to know the individual cow's production and the cost, thus giving them the knowledge to eliminate the unprofitable cow. This work cannot be continued unless such efforts are recognized and necessary appropriations made for carrying it on.

The following is a list of cow testing associations operating in New York State during the year covered by this report:

COW TESTING ASSOCIATIONS IN OPERATION JUNE 14, 1914.

County and Association	Began Work
Allegany:	
Genesee Valley Cow Testing Association.....	March 1, 1914
Cattaraugus:	
Ischua Valley Cow Testing Association.....	April 1, 1912
Chautauqua:	
Carroll Cow Testing Association.....	April 1, 1911
Sinclairville Cow Testing Association.....	April 1, 1913
Chemung:	
Northern Chemung Cow Testing Association.....	April 16, 1914

County and Association	Began Work	
Cortland:		
Cortland County Dairy Improvement Association.....	June	1, 1914
Delaware:		
Bovina Cow Testing Association.....	May	1, 1911
Cannonsville and Deposit Cow Testing Association.....	April	1, 1911
Delhi Cow Testing Association.....	April	1, 1910
Roxbury Cow Testing Association.....	Nov.	1, 1912
Dutchess:		
Dutchess-Columbia Cow Testing Association.....	Jan.	1, 1914
Herkimer:		
Royal Grant Cow Testing Association.....	Dec.	1, 1913
Southern Herkimer Cow Testing Association.....	Nov.	1, 1913
West Canada Creek Cow Testing Association.....	Oct.	15, 1913
Jefferson:		
Antwerp Cow Testing Association.....	April	15, 1913
Jefferson County No. 1 Cow Testing Association.....	April	17, 1912
Smithville Cow Testing Association.....	May	14, 1913
Lewis:		
Lowville Cow Testing Association.....	March	1, 1914
Oneida:		
Knoxboro Cow Testing Association.....	May	3, 1913
Vernon-Verona Cow Testing Association.....	March	1, 1914
Waterville Cow Testing Association*.....	Dec.	15, 1912
Westernville Cow Testing Association.....	April	15, 1913
Onondaga:		
Central Onondaga Cow Testing Association.....	Dec.	1, 1913
Skaneateles Cow Testing Association.....	Oct.	28, 1913
Otsego:		
Butternut Valley Cow Testing Association (Gilbertsville)	March	1, 1913
Otsego No. 1 Cow Testing Association (Mt. Vision)....	Nov.	1, 1912
St. Lawrence:		
Stockholm Cow Testing Association.....	April	11, 1914
Saratoga:		
Saratoga-Schenectady Cow Testing Association.....	Nov.	10, 1913
Tompkins:		
Ithaca Cow Testing Association.....	May	1, 1908
Washington:		
Hartford-Hebron Cow Testing Association.....	April	24, 1913
Wyoming:		
Java Cow Testing Association.....	June	1, 1914
Perry Cow Testing Association.....	June	1, 1913
Warsaw Cow Testing Association.....	June	1, 1914

RESULTS GAINED BY COW TESTING ASSOCIATIONS

Farmers' Institute Lecturer

A. J. NICOLL.

The interest of the breeders of pure-bred stock in the yearly records is increasing. Buyers are more and more asking for a yearly record, and breeders are feeling the need of a continuous record of milk and fat production in order to do their best.

In the year 1912, The Tri-County Holstein Friesian Association was formed at Sidney, N. Y., with nine herds and about 500 cows, all pure-bred Holsteins. In May, 1913, the first annual sale was held when 100 head of cattle were sold for \$19,015.

* Formerly Sangerfield Country Club Cow Testing Association.

The second annual sale was held on May 20, 1914, at which 180 head of Holsteins were sold for \$46,915. The officers of this association are: President, Walter L. Terry, Walton, N. Y.; Secretary and Treasurer, Ralph Corbin, Bainbridge, N. Y.

On May 2, 1914, a similar association was formed at Walton known as the Delaware County Holstein Friesian Association.

The increase of production of the herds in the associations is very marked and the increase in profit over feed as shown by the records is certainly encouraging.

In order to show the possibilities of increasing the production per cow by culling out the unprofitable cows we selected five good herds with a total of 198 cows, and compared them with seven poor herds with a total of 198 cows. These herds were selected from associations in Erie, Oneida, Otsego and Delaware counties. Most of the hay was figured at ten dollars per ton, pasture at thirty cents per week and grain at the price paid by the farmer.

<i>Average per cow:</i>	Lbs. milk.	Lbs. fat.	Value.	Profit over feed.	Return for \$1.00 feed.	Food cost 1 lb. fat.	Food cost 100 lbs. milk.
198 cows in 5 good herds	5372	251	\$104.98	\$61.82	\$2.43	\$0.17	\$0.80
198 cows in 7 poor herds	3961	176	68.48	43.90	1.95	.19	.87
Difference	<u>1411</u>	<u>75</u>	<u>\$36.50</u>	<u>\$17.92</u>	<u>\$0.48</u>	<u>\$0.02</u>	<u>\$0.07</u>

One hundred and forty cows like the average in the good herds would make as much profit over their feed as the 198 cows in the poor herds.

The following table shows how both the good and poor herds can increase the average production by culling out the unprofitable cows:

<i>Average per cow:</i>	Lbs. milk.	Lbs. fat.	Value.	Profit over feed.	Returns for \$1.00 feed.	Food cost 1 lb. fat.	Food cost 100 lbs. milk.
198 cows in 5 good herds	5372	251	\$104.98	\$61.82	\$2.43	\$0.17	\$0.80
Best 10 in each herd. Best cow in each herd	7264	362	149.65	95.59	2.77	.15	.74
	8658	424	178.38	118.66	2.99	.14	.69
Returns for extra feed — Best 10 . . .	<u>1892</u>	<u>111</u>	<u>\$33.67</u>	<u>\$33.77</u>	<u>\$4.11</u>	<u>\$0.098</u>	<u>\$0.58</u>
Extra feed per cow, \$10.86.							
Returns for extra feed — Best cow . .	<u>3286</u>	<u>173</u>	<u>\$73.40</u>	<u>\$56.84</u>	<u>\$4.44</u>	<u>\$0.095</u>	<u>\$0.50</u>

Extra feed per cow, \$16.53.

One hundred and three cows as good as the best cow or 128 cows as good as the best ten in each herd would make as much profit over their feed as the 198 cows in the five herds.

<i>Average per cow:</i>	Lbs. milk.	Lbs. fat.	Value.	Profit over feed.	Returns for Food cost \$1.00 feed. 1 lb. fat.	Food cost 100 lbs. milk
198 cows in 7 poor herds	3961	176	\$68.45	\$43.90	\$1.95	\$0.87
Best 10 in each herd.	5681	253	99.35	52.65	2.11	.83
Best cow in each herd	6273	305	120.02	66.81	2.25	.85
Returns for extra feed—Best 10...	1720	77	\$30.90	\$8.75	\$2.49	\$0.72
Extra feed per cow, \$12.41.						
Returns for extra feed—Best cow..	2312	129	\$51.57	\$22.91	\$2.81	\$0.81
Extra feed per cow, \$18.63.						

One hundred and thirty cows like the best cow or 145 like the best ten would make as much profit over their feed as the 198 cows in the seven herds, and would give a much larger return for the extra feed consumed.

The good herds here selected were not the best in the respective associations, but were selected because they were composed of the same number of cows as the poor herds. Note the greater return for extra feed by the best ten and the best cow of the good herds over the best ten and the best cow in the poor herds.

The following tables show the results of three years' membership in the Delhi Cow Testing Association to Peter Clark, Delhi, N. Y.:

Average yearly record of herd, best ten cows, and best cow in the herd for the three years. This herd won the \$50.00 premium at the State Fair for increase of record of 1912 over record of 1911 and still continues to improve.

Year.	No. of cows.	Lbs. milk.	Lbs. fat.	Value of product.	Cost of feed.	Profit over feed.
1911	38	4716	229	\$75.66	\$43.49	\$32.17
1912	39	4905	239	91.42	35.72	55.70
1913	36	5914	296	115.37	38.64	76.72

The cost of feed was \$4.85 per cow less the third year than the first and the profit over feed \$44.55 more.

Average record of the best ten cows in above herd for the three years.

Year.	Lbs. milk.	Lbs. fat.	Value of product.	Cost of feed.	Profit over feed.
1911	6502	331	\$109.41	\$55.57	\$53.84
1912	7302	362	133.22	45.98	87.24
1913	7721	404	157.66	47.68	109.98

Here we see again a saving of \$7.89 per cow on feed and an increase of \$56.14 per cow in profit over feed.

Average record of best cow in above herd for the three years.

Year.	Lbs. milk.	Lbs. fat.	Value of product.	Cost of feed.	Profit over feed.
1911	6862	407	\$135.65	\$60.31	\$75.34
1912	8920	415	163.42	50.40	113.02
1913	9724	475	187.92	54.22	133.70

During the three years the profit over feed was increased \$58.36 and the cost of the feed reduced \$6.09 with the best cow in the herd. Mr. Clark says, "I have been a member of the cow testing association for three years and will say that I do not see how any dairyman can afford to do without it."

The following record of the herd of March Farrington, Delhi, N. Y., Delhi Association, Delaware county, shows what it is possible to do by culling a herd and replacing the poor cows with profitable ones.

TOTAL FOR HERD

Year.	No. of cows.	Lbs. milk.	Lbs. fat.	Value.	Cost of feed.	Profit over feed.	Returns for \$1.00 feed.
1912	41	179,894	8544	\$3,257.96	\$1,972.86	\$1,288.83	\$1.65
1913	39	190,018	9274	3,887.91	1,830.31	2,057.60	2.12

The 39 cows consumed \$142.55 less feed and produced \$768.77 more profit over their feed the second year than the 41 cows did the preceding year. The second year added 47 cents to the returns for each dollar's worth of feed consumed by the herd. This includes the roughage and pasture.

AVERAGE FOR HERD

Year.	No. of cows.	Lbs. milk.	Lbs. fat.	Value.	Cost of feed.	Profit over feed.	Returns for \$1.00 feed.
1912	41	4387	208	\$79.46	\$48.12	\$31.46	\$1.65
1913	39	4882	238	99.69	46.93	52.74	2.12

Each cow consumed \$1.19 less feed and produced \$21.28 more profit.

AVERAGE PER COW — BEST TEN COWS IN THE HERD

Year.	No. of cows.	Lbs. milk.	Lbs. fat.	Value.	Cost of feed.	Profit over feed.	Returns for \$1.00 feed.
1912	41	5932	291	\$110.65	\$59.39	\$51.81	\$1.86
1913	39	6916	341	141.68	59.74	81.93	2.37

The best ten at a cost of thirty-five cents for extra feed returned \$30.75 more profit than the best ten the previous year.

AVERAGE PER COW — BEST COW IN THE HERD

Year.	No. of cows.	Lbs. milk.	Lbs. fat.	Value.	Cost of feed.	Profit over feed.	Returns for \$1.00 feed.
1912	1	7606	345	\$132.69	\$62.31	\$70.35	\$2.13
1913	1	7779	399	166.50	65.77	100.73	2.53

A better cow under the same conditions increases the profit over feed \$30.38 at an additional cost of \$3.46 for feed.

Mr. Farrington says of the association work, "I cannot speak too highly of the cow testing association and what it has done for me. After testing for one year we found nearly one-third of our herd unprofitable. After disposing of them our returns for feed were much increased."

An increased interest is being manifested in the cow testing association work by the breeders of pure-bred cattle. Many owners of pure-bred herds are doing semi-official work in the association at a lower cost, and in addition, are getting a complete record of every individual in the herd.

Mr. Walter L. Terry of Walton, N. Y., who has a pure-bred Holstein Friesian herd, has been a member of a cow testing association for the past three years. Mr. Terry says, "I believe that every farmer should put scales and a Babcock tester into his barn, and that the best means of conducting and keeping records of the herd is through a cow testing association."

The following table shows the production, value of product, including surplus stock sold, cost of feed, and profit over feed in Mr. Terry's herd for the three years he has been in the association:

Year.	No. of Cows	Lbs. Milk	Lbs. Fat.	Value of Product.	Value of Surplus stock Sold.	Cost of feed.	Profit over feed
1911	32	220810	8583	\$3,488.79	\$2,300.00	\$1,523.12	\$4,265.67
1912	36	271526	9911	4,354.31	3,150.00	2,113.57	5,390.74
1913	61	359372	12720	6,038.35	5,000.00	3,165.94	7,872.41
Average per cow for the entire herd for the three years.							
1911		6900	268	\$109.02	\$71.19	\$47.91	\$133.38
1912		7542	275	120.95	87.72	58.71	149.69
1913		5891	209	98.99	81.97	51.90	129.05

Average for the best ten cows in the herd for the three years.

Year	Lbs. Milk	Lbs. Fat	Value of Product.	Cost of Feed.	Profit over feed
1911	12041	485.1	\$190.24	\$64.50	\$125.74
1912	14274	528.9	217.16	86.79	130.37
1913	12424	452.0	203.36	85.35	118.00

Six of the best ten of 1912 were sold during the year 1913.

Mr. Charles O. Linderman of Allegany, Cattaraugus county, gives the following testimonial, "I have derived enough benefit

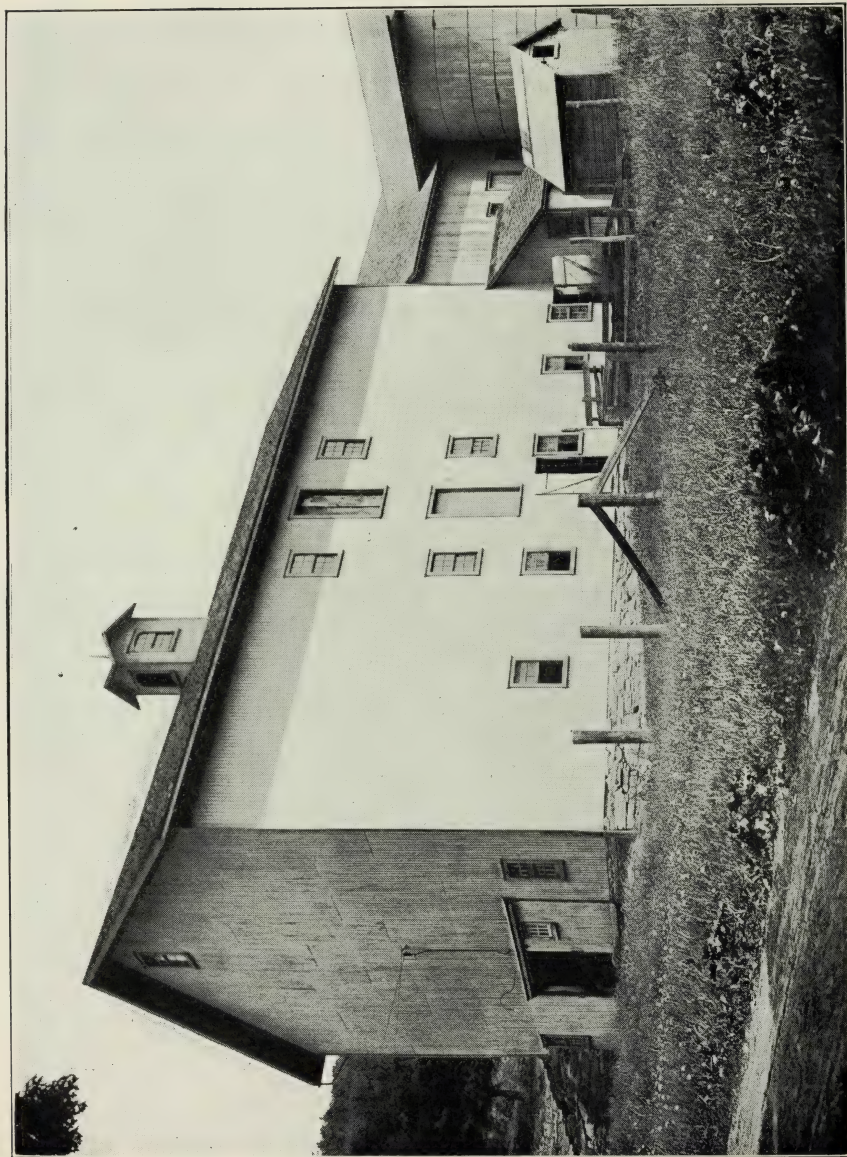


FIG. 273.—BUILDINGS ON FARM OF W. L. TERRY, WALTON, N. Y., MEMBER OF THE DELHI COW TESTING

from the cow testing association to warrant my being a member for the third year. I was anxious to have some 10,000-pound cows, and the first year found that I had the only cow in the association that gave that amount. The next year I bettered it by getting 11,000 and 11,663 respectively from two, while most of the others came up to seven, eight and nine thousand pounds. I sold the calf from one of those two for twenty-five dollars when a week old. Some of the cows I valued lowest proved to be making me more profit than some that I considered much-better. The association shows one what each cow is making from what she eats and helps one to sort out the poor cows, keeping only the profitable ones; besides it makes one take better care of them in order to keep even with the other fellow and not let his dairy be the bottom one."

Mr. Frank N. Kelsey of Deansboro, Oneida county, writes, "I have been a member of a cow testing association a little over a year and consider it a real necessity in helping me to feed the dairy. If we wish to make our business more profitable I know of no better way than to join a cow testing association."

Mr. A. C. Rockwell of Garrettsville, Otsego county, writes, "I have been a member of a cow testing association for two years. In that time the different individuals in my herd have completely changed in my estimation of their value. Those that were at the top have given place to those I considered not good enough to breed from. I shall stay in the association so long as there is one within reach."

C. O. Gregory of Mt. Vision, N. Y., made the following statement, "When I was asked to join the cow testing association my first thought was of the expense and of having the man in the way; but after trying it for three months I find that I have gained knowledge enough to pay all it will cost me for several years. I shall be a member as long as I have a dairy."

Frank L. Gregory of Mt. Vision says, "After being in the cow testing association for a year I sold my cows from twenty-two to nine. I discharged the hired man and girl and have more clear money each month."

Mr. Harley Robinson, tester, Cuyler, Cortland county, sends us this communication, "The association is helping the farmers to

select their best cows, throw out the low testers and raise their test at the creamery. The creamery here pays a premium of ten cents per hundred weight for milk testing 3.7 per cent. I have found milk testing as low as 1.9 per cent. and as high as 8.1 per cent."

Homer N. Stockwell of Allegany county writes, "The members of the association appear to get better tests at the creamery. They get better results from feeding. For example, one member was saved eighteen cents on each hundred pounds of milk produced in the month of March. This was done by the tester figuring a balanced ration to be fed in place of what the herd had been receiving."

FARM BUREAUS

While the Director of Farmers' Institutes has no official relation with the farm bureaus other than the indirect one of being one of the official staff of the Commissioner of Agriculture, who has direct and vital relations with the bureau both as a distributor of the state funds and payer of one third of the salaries of the State Director of Farm Bureaus and his assistants, as well as that of the joint advisor and director with the Federal Government and Cornell University; nevertheless the relations between this bureau and the farm bureaus have been very close, to our mutual advantage. As stated under the head of "County Conferences" these are held in the offices of the farm bureau men. The farm bureau men being longest on the ground are often better able to locate an institute than anyone else. Through them not a few institutes have been placed in towns never before having such a meeting. They are also able to suggest subjects which need to be discussed. In one county a specialist on drainage was brought from another state at the suggestion and request of the farm bureau manager.

A list of the meetings assigned to the county, with dates, is sent to them as soon as determined. The help they have given the localities before the meeting has done much to make them a success and to engender an increased local interest. They always attend the institutes and have a place on the program so that they may say a word relating to their work. Those apt to speak often take a particular subject, generally of their own choosing. In St. Lawrence county the number of days was increased by three, the farm bureau manager taking the place of one speaker, thus decreasing the expense to the state and enabling that county to have this increased work. Mr. Robertson, of Jefferson county, brought to each institute an exhibit of illustrated material showing results of his work along several lines, which was exceedingly instructive. The institutes give the bureau men an opportunity to get in touch with the farmer, and they often follow up suggestions made

there. Mr. Robertson said the majority of his demonstration and cooperative work had been arranged for through the institutes.

Every week questions of various kinds come to the Director for information as to farms, products, etc., in the various counties of the state. In the majority of cases the information sought can in no other way be so correctly obtained as through the farm bureau manager to whom these questioners are directly referred.

Frequently the county men have problems which the bureau of institutes can assist them in solving. The following counties have received help from the institute men: Oswego, Wyoming, Chemung, Cortland and Broome.

At the expense of the institute fund the county men were brought to the Normal Institute at Ithaca for instruction for the institute workers as described on pages 1803-1846. It is vital that only truth should be taught and that all teachers should have the same opportunity to obtain such truth; hence all agricultural workers throughout the state are teaching practically the same doctrines promulgated by the College and Experiment Station. At this meeting opportunity was afforded for personal acquaintance and conference which helped to cement the relation between college, station and farm bureaus.

The above is only a partial recital of the affiliation between these agencies for agricultural advancement. As time passes they will be able more and more to supplement one another's work. Well said the Psalmist, "*One* shall chase a thousand but *two* shall put ten thousand to flight."

INSTITUTE BOOTH AT STATE FAIR

For the first time the Farmers' Institute Bureau had a booth in the State Institutions' Building as a part of the exhibit of the State Department of Agriculture. The accompanying picture gives a general idea of it and to a degree shows the exhibits made.

Charts at the side of the booth gave the following statistics as to the three leading products in each county.

SOME NEW YORK STATE AGRICULTURAL STATISTICS, CENSUS 1910

County	Dairy Products, value	Cereals, bushels	Hay and Forage, tons	Orchard Fruits, bushels
Albany	\$821,380	1,149,298	80,277	577,909
Allegany	1,748,645	1,276,593	175,279	247,981
Broome	1,602,869	537,233	113,789	155,598
Cattaraugus	2,678,930	1,217,063	237,093	565,789
Cayuga	1,295,343	3,125,712	151,721	533,395
Chautauqua	2,097,464	1,669,836	228,907	699,625
Chemung	545,202	647,657	51,053	95,621
Chenango	2,975,681	701,758	222,054	244,443
Clinton	838,445	944,535	103,362	75,816
Columbia	783,802	1,228,351	89,208	1,055,771
Cortland	1,595,671	608,995	130,414	140,350
Delaware	4,762,996	523,128	247,773	362,019
Dutchess	2,131,838	1,380,613	122,406	863,291
Erie	2,403,204	2,577,882	207,202	680,791
Essex	355,503	355,907	50,479	48,481
Franklin	1,174,737	1,007,274	107,630	75,945
Fulton	437,818	389,945	50,479	35,250
Genesee	652,155	1,893,174	92,123	638,015
Greene	746,294	554,023	62,748	721,179
Hamilton	36,099	13,986	6,103	6,463
Herkimer	2,199,633	731,647	190,797	145,437
Jefferson	3,368,052	2,431,408	341,544	86,592
Kings	18,705	1,682	90	49
Lewis	1,663,908	759,632	156,063	33,553
Livingston	852,790	1,985,761	120,272	245,097
Madison	2,275,039	1,119,114	238,587	238,115
Monroe	869,181	3,218,788	97,959	3,096,393
Montgomery	1,299,769	1,282,282	130,173	140,105
Nassau	177,563	361,588	10,789	22,908
New York	50,480	700	335	30
Niagara	553,713	2,394,468	82,468	3,378,343
Oneida	3,462,287	1,226,184	321,802	279,943
Onondaga	2,123,637	2,272,195	215,059	317,129
Ontario	535,985	2,733,716	93,364	1,061,244
Orange	3,570,647	656,555	138,241	432,317
Orleans	238,625	1,570,703	57,749	2,533,849
Oswego	1,950,833	1,084,892	166,002	485,427
Otsego	2,826,725	1,344,811	254,991	295,931
Putnam	573,898	151,342	29,087	127,622
Queens	293,747	44,140	1,003	1,424
Rensselaer	1,252,398	1,227,210	96,129	345,776
Richmond	128,785	9,944	1,298	1,965

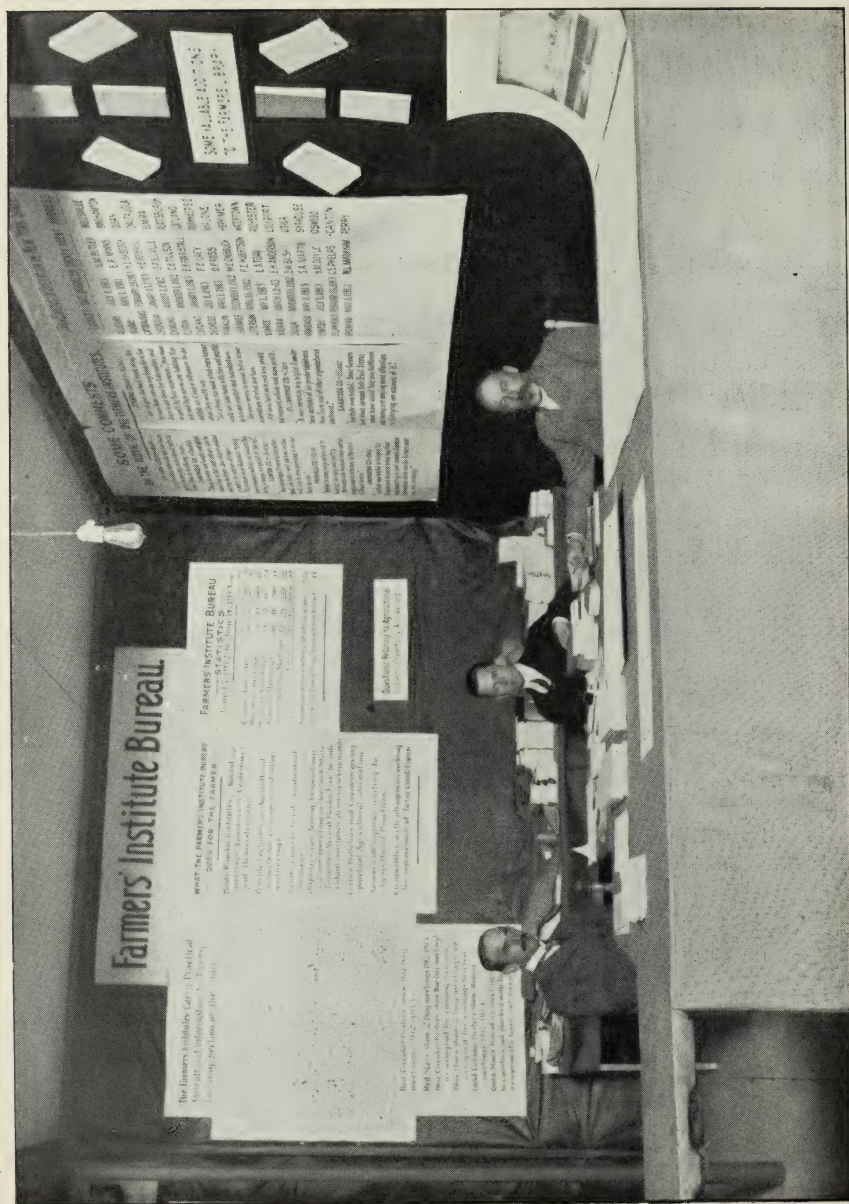


FIG. 274.—BOOTH OF FARMERS' INSTITUTE BUREAU AT STATE FAIR, 1913.

County	Dairy Products, value	Cereals, bushels	Hay and Forage, tons	Orchard Fruits, bushels
Rockland	\$161,552	117,018	11,224	135,221
St. Lawrence.....	4,491,072	2,443,932	421,612	181,036
Saratoga	787,410	1,157,875	75,421	192,452
Schenectady	253,598	506,170	33,346	90,270
Schoharie	1,443,765	1,068,641	114,376	233,648
Schuyler	228,262	758,989	44,344	153,441
Seneca	274,300	1,511,085	59,724	405,556
Steuben	1,455,994	2,093,206	189,482	366,020
Suffolk	320,171	924,914	22,011	53,398
Sullivan	770,830	405,703	62,063	322,216
Tioga	865,989	820,868	80,889	101,567
Tompkins	774,753	1,382,024	88,527	192,837
Ulster	1,111,721	880,529	90,285	949,753
Warren	216,502	134,537	25,345	65,539
Washington	1,367,254	1,382,706	121,417	140,229
Wayne	942,530	2,432,355	104,117	3,558,213
Westchester	809,865	250,116	52,252	279,899
Wyoming	1,368,403	1,456,687	142,315	644,313
Yates	192,714	1,100,133	42,777	299,702
The State	<u>\$77,807,161</u>	<u>69,239,218</u>	<u>7,055,429</u>	<u>29,456,291</u>

There was also shown the following list of farm bureau men then working in the state:

FARM BUREAUS IN OPERATION IN NEW YORK STATE SEPTEMBER, 1913

County	Date Organized	County Agent
Allegany	July 1, 1913.....	G. M. Butler, Wellsville.
Broome	April 1, 1911.....	E. R. Minns, Binghamton.
Cattaraugus	February 20, 1913.....	H. E. Babcock, Olean.
Chautauqua	January 15, 1913.....	H. B. Rogers, Chautauqua.
Chemung	August 1, 1912.....	G. P. Seoville, Elmira.
Clinton	November 1, 1912.....	C. B. Tillson, Plattsburg.
Cortland	January 1, 1913.....	E. H. Forristall, Cortland.
Dutchess	July 1, 1913.....	F. H. Laey, Poughkeepsie.
Franklin	April 1, 1913.....	O. F. Ross, Malone.
Herkimer	December 1, 1912.....	M. E. Chubbuck, Herkimer.
Jefferson	April 16, 1912.....	F. E. Robertson, Watertown.
Monroe	May 1, 1913.....	L. A. Toan, Rochester.
Niagara	March 1, 1913.....	E. H. Anderson, Lockport.
Oneida	November 1, 1912.....	G. W. Bush, Utica.
Onondaga	May 1, 1913.....	S. A. Martin, Syracuse.
Oswego	July 1, 1913.....	H. M. Doyle, Oswego.
St. Lawrence.....	February 15, 1913.....	C. S. Phelps, Canton.
Wyoming	May 1, 1913.....	W. L. Markham, Perry.

as well as some quotations from what some correspondents had written as to the work done by the institutes in the past. A few of these are here printed:

CAYUGA COUNTY — MENTZ (TOWNSHIP)

"Since Institute more attention has been given to spraying orchards and potato crops, also to fertilizing crops."

CHAUTAUQUA COUNTY — CHARLOTTE

"Many farmers have bought and applied more lime to their land and are also beginning to drain. New interest awakened in matter of rotation of

crops. The Institute keeps the farmers thinking about improved methods and induces them to try a change and get out of the rut."

CLINTON COUNTY — SARANAC

"Has encouraged farmers to buy better feed, use better seed, use lime on the soil, and to keep pure-bred sires for their herds."

FRANKLIN COUNTY — MALONE

"Helpful in many ways pertaining to farming, dairying and poultry. The women also received many useful suggestions with reference to the care of their homes."

ONONDAGA COUNTY — ELBRIDGE

"Institute was helpful in bringing farmers and farmers' wives together and imparting a vast amount of genuine information such as the farmers need and are seeking."

OTSEGO COUNTY — MIDDLEFIELD

"Not a thing was said which every farmer could not take home with him and practice to his own comfort and satisfaction."

ST. LAWRENCE COUNTY — LISBON

"It was certainly very helpful. I consider these institutes of far greater helpfulness than fairs and all other organizations combined."

The lines of work carried on by the Bureau of Farmers' Institutes were placarded as below:

WHAT THE FARMERS' INSTITUTE BUREAU DOES FOR THE FARMER

Holds Regular Institutes, Round-up Meetings, Country Life Conferences, and Demonstrations.

Provides Lecturers on Agricultural Subjects for Granges and Other Gatherings.

Sends Experts to Advise Individual Farmers.

Organizes Cow Testing Associations: Twenty-two now operating in New York State. Furnishes Record Books free to Individual Dairymen desiring to keep Records.

Issues Bulletins and Circulars giving Practical Agricultural Information.

Answers all inquiries relating to Agricultural Practices.

Cooperate with all agencies working for the improvement of farm conditions.

All these served to attract attention and in many cases gave information as to the work of the Bureau of Farmers' Institutes of which the visitor had little if any previous knowledge. The Director's assistant, W. F. McDonough, arranged and was in charge of the booth for the entire week. He was assisted by the Director a portion of the time and by institute workers, D. P. Witter, Jared Van Wagenen, Jr., and J. H. Barron, one day each. These men held a continuous Farmers' Institute in answering questions and giving information individually to those who gathered there throughout the life of the Fair. We were well supplied with our own bulletins as well as other literature, and a list of

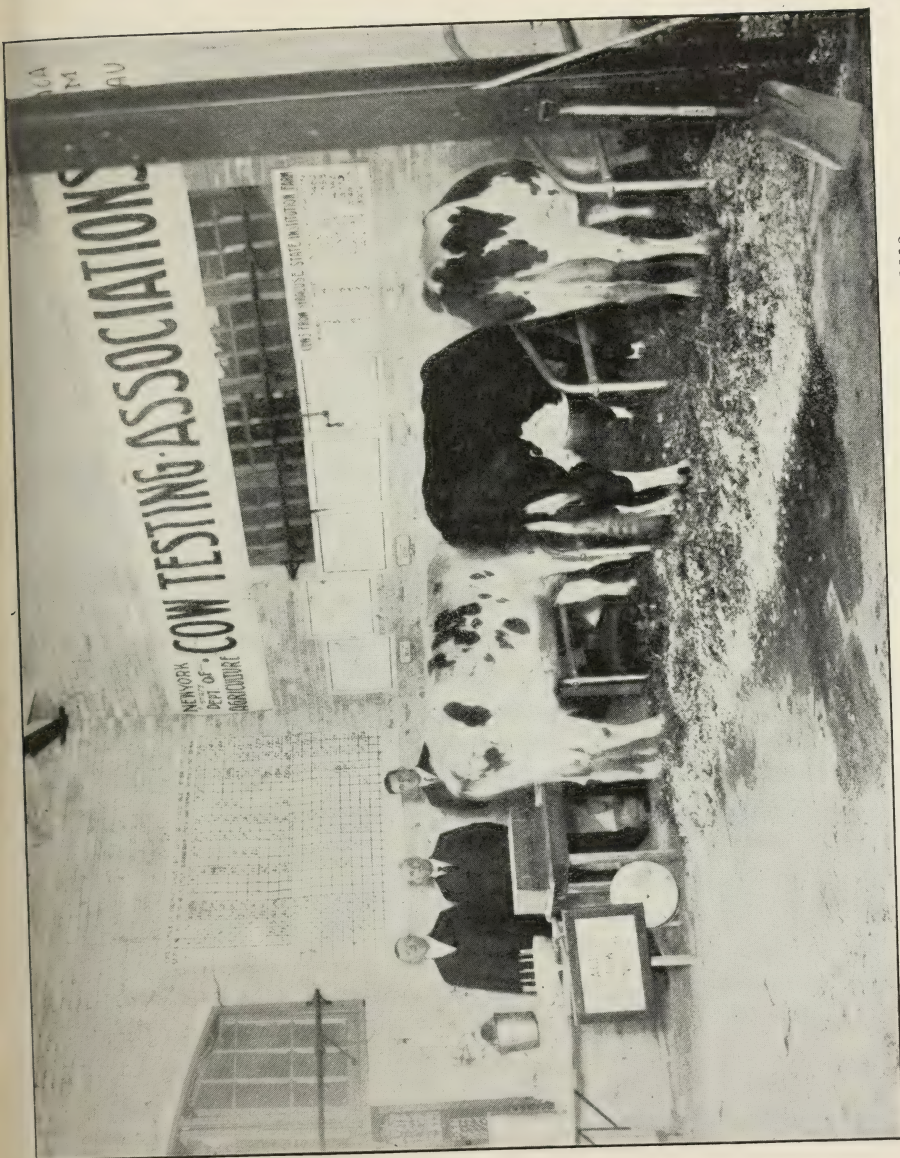


FIG. 275.— EXHIBIT OF COW TESTING WORK AT STATE FAIR, 1913.

Cornell, Geneva and Federal publications was presented for the visitors to select from.

Over two hundred and fifty persons left their names and addresses for special publications or to have their names placed on our mailing list. Hundreds of bulletins were distributed to those requesting them. Many availed themselves of the opportunity to come in and discuss special phases of the work in which they were particularly interested. Without question never in the history of the Farmers' Institutes in the state have those in charge for so short a time and for so small an expenditure of money come in so close touch with so many people.

For the Fair to be held August 31 to September 5, 1914, the purpose is to have another exhibit with, it is hoped, more commodious quarters where visitors may meet the workers of the institutes and the work as outlined above may be repeated and extended.

In the dairy building there was another exhibit and demonstration of what the cow testing associations are doing. This was in charge of A. J. Nicoll assisted by John A. Ennis, Farmers' Institute workers, and S. A. Martin, Farm Bureau Manager, Onondaga County. Six Holstein cows were secured by the latter from the Syracuse State Institution for Feeble Minded Children, Syracuse, for the week of the fair. Records of their daily milkings and per cent. of fat were placarded where all could see, the milk being tested by a Babcock tester where all interested could witness the operation. Large charts showing the good and poor records of herds in the associations were displayed and explained by those in charge. (Some of these may be found under the head of "Cow Testing Associations" on pages 1903-1914). Much valuable literature on the subject was also distributed.

COOPERATIVE WORK WITH COLUMBIA UNIVERSITY, NEW YORK CITY

A new and most interesting line of work has been taken up in connection with the Agricultural Department of Columbia University. As a result of the unsatisfactory and limited conditions of life in our great cities on the one hand, and the exploitation to idealize country life and the advantages to be found on farms on the other, there has come to pass what is known as "the back to the land movement," one fraught with much that is harmful both to the individual and society. Hundreds of men and women in our cities, attracted by the "lure of the land" are anxious to take up agriculture. A few of these with previous farm experience or with sufficient capital to tide them over the initiatory period, who are naturally farm minded, may do so to their own advantage and that of the country as well; but unfortunately the majority because of lack of experience and little or no capital cannot possibly engage in agriculture with any expectation of success. So eager are these "back to the landers" for information, and so utterly unable to discriminate between the true and the false, that they are likely to become a prey to land sharks and those who for gain to themselves pose as agricultural advisers.

To Professor O. S. Morgan, head of Columbia's agricultural department, have come these seekers after agricultural knowledge. Realizing the conditions cited above and his inability to cope with them single handed, he presented the matter to Commissioner Huson with the added statement that it seemed as important to prevent the unfit from going into the country as to aid those already on the farms, and that they who might with advantage go into the country were in greater need of assistance than those long established on the soil. The force of this was so apparent that the Commissioner instructed the Director of Farmers' Institutes to cooperate with Professor Morgan as outlined herewith.

[1923]

A room was hired in the Pulitzer Journalistic Building at 116th street and Broadway, on the university grounds. This was supplied with the bulletins of the Department of Agriculture, as well as those from our Experiment Stations and the United States Department of Agriculture. Beginning January 23, 1914, a representative of the Department of Agriculture was present in this room from 9:30 a. m. to 4:00 p. m. on every other Friday until May 1. The alternate Friday one of the agriculture staff of Columbia was on duty. Notice was sent to the New York papers to the effect that those interested in agriculture would find a free and authoritative advisor on agricultural matters as above. Director van Alstyne personally attended on January 23 and May 1; the other dates were assigned to Jared Van Wagenen, Jr., John H. Barron, D. P. Witter and John A. Ennis of the Institute force. On these days the time of the one in attendance was fully taken up by inquiries. Some of those present were actually engaged in farming and were able to obtain information by word of mouth or through literature which was of undoubted value. Many were directed as to where they might profitably locate, and a large number could only be advised to abandon any thought of engaging in farming. Not a few had been victims of exploiters. Without question thousands of dollars were saved from unwise investment, either by definite information as to proper expenditure or even more important in preventing unwise ones. This room came to be recognized as official agricultural headquarters. The expense to the Department of \$669.06 unquestionably gave many times the return to the state.

It is hoped, if sufficient funds are supplied, to continue this work another year, commencing earlier in the season and extending it so as to be able to supply a list of desirable New York State farms within one hundred miles of the city, with all detail relative to them, and to be able to give to those going on them personal instruction either through the farm bureau men or department representatives. In addition to this personal contact work the following series of lectures was arranged for at Room 305,

Schermerhorn Hall, Columbia University, on each Friday at 4:10 p. m.

Date	Speaker	Subject
Jan.	23. Edward van Alstyne.....	Fruit Growing.
Feb.	6. Jared Van Wagenen, Jr.....	Dairying.
	20. John H. Barron.....	Observations from the Agriculture of the Hill Lands of New York.
	27. Jared Van Wagenen, Jr.....	The Geography of New York State.
March	6. H. R. Lewis.....	Poultry.
	20. D. P. Witter.....	Advice Relative to Correct Farm Practice.
April	3. H. R. Lewis.....	Poultry.
	17. Jared Van Wagenen, Jr.....	How to Choose a Farm.
	24. Hon. Calvin J. Huson.....	What the Department of Agriculture Is Doing for the Farmer.*
May	1. Edward van Alstyne.....	Fruit Growing.

At these ten lectures there were in attendance 1,245. All the lecturers bear witness to the high character of their audiences. A considerable number were women. There were agricultural students and gray haired men and women; many of them actual farmers. Not only were they attentive listeners but they asked most intelligent questions, and many took notes. The average attendance per session was more than double that of the regular institutes.

Much credit is due the city press for the publicity given this work, particularly the New York Times and the Evening Post, the latter devoting at least a column each week to a report of the lectures.

* This address was read by Deputy Commissioner H. E. Cole on account of inability of Commissioner Huson to be present.

COUNTY FARMS

The following was enacted into law by the Legislature of 1913:

"The commissioner of agriculture is hereby empowered and authorized to make or cause to be made investigation and examination as to the farm lands at the almshouse farms of the various counties, the purposes to which they are best adapted and the crops which can most profitably be raised thereon, and to make report on the same to the boards of supervisors of the said counties; and to give lectures and demonstrations at least once each year at said almshouse upon the agricultural methods best adaptable to the various communities, sufficient notice of such lectures and demonstrations being given throughout all parts of the county. The commissioner of agriculture may assign members of the staff of the New York experiment station at Geneva, members of the faculties of the New York college of agriculture and of the various state schools of agriculture, subject to the approval of the directors thereof, to carry out the provisions of this section under his direction." (As added by chapter 460 of the Laws of 1913.)

Unfortunately, no special appropriation was made for this purpose. Deputy Commissioner of Agriculture Winters asked the co-operation of the Director of Farmers' Institutes that these county farms might be made demonstrative centers, where certain crops, fertilizers and cultural methods might be tried out for the benefit of the farmers of the counties, as well as the farms themselves. Here, too, was an opportunity to demonstrate the value of better bred live stock, either by building up from a pure-bred male or more rapidly from pure breds on both sides, and also to establish on these farms a breeding center for the community. In centers where farm bureaus are established this would not seem too difficult to accomplish.

In furtherance of this plan, meetings were held at the following county almshouse farms:

Counties	Place	Date
Herkimer	Herkimer	Dec. 15
Jefferson	Watertown	" 20
Oneida	Rome	" 13
Oswego	Mexico	" 19
St. Lawrence	Canton	" 18

All these counties have farm bureaus. The supervisors were especially invited to the meetings, notice also being published in the local papers calling attention to the meeting and urging any interested to attend. It was not designed to make them popular meetings, but rather in the nature of a conference. The farm bureau men were in attendance, as were R. E. Gregg, Barnes Cor-

ners, and J. H. Rogers, Marion, the former having oversight of the farms in the eastern half of the state, the latter in the western. C. R. White, Ionia, of the institute staff, attended all the meetings, discussing potatoes and garden crops, both of vital importance on these county farms. Director van Alstyne attended the meetings at Rome, Oneida county, and at the county house, Herkimer, Herkimer county, taking up swine, dairy cattle and fertility matters. Deputy Commissioner Winters was at the last three meetings, giving advice especially along lines of dairying.

From twenty to thirty representative men were present at each of these meetings. A session was held in the morning, where one or more of the above subjects was taken up and discussed, particularly with reference to its adaptability to the farm connected with the institution. At noon a lunch was served by the superintendent, after which the barns and stock were inspected and as much of the farm as was possible at that season. In the afternoon, farm problems were again taken up, by which time cordial relations had been established and the discussion was general and intimately connected with matters at close range. At all these meetings the farm bureau men were brought into sympathetic relations with the farm superintendents and in several instances co-operative work was arranged for. It was agreed by Deputy Commissioner Winters and Director van Alstyne that meetings of like character should be planned during the spring, summer and early fall, when the farms could be gone over and note taken of the work being done, and a larger gathering of both farm men and women be brought together, where they might study agricultural subjects as related to their own county farm. Unfortunately the failure of the Legislature to supply the funds asked for by the Bureau of Farmers' Institutes will prevent the carrying out of this line of work, at least during the coming year.

BULLETINS

While realizing the importance of the spoken word and of personal contact of man with man to be of greatest efficiency, this must be accompanied or supplemented by the printed page. Efforts along this line have already been noted by reference to the circulars and abstracts given at the meetings. To be still more efficient the Bureau has issued two special bulletins during the past year—the first in December, No. 54, under the title of “The Dairy Industry of New York State,” a volume of 439 pages, containing 103 illustrations, with the following table of contents and authors:

CONTENTS

Introduction	
Laws in Force in New York State Relating to Dairying.....	
The Country Milk Situation in New York State, Edward van Alstyne..	
Handling and Delivering New York City Milk, H. N. Hallock.....	
How a Small City Improved its Milk Supply, H. A. Harding.....	
Bacteria in Milk, Dr. Robert S. Breed.....	
The Story of a Certified Milk Farm, W. D. Dana.....	
Pasteurized Milk and Best Appliances Therefor, H. E. Ross.....	
Sanitary Economical Appliances in Clean Milk Production, H. E. Ross..	
The Milking Machine, G. A. Smith.....	
Sanitary Economical Dairy Barns, H. E. Cook and R. H. Smith.....	
The Cheese Industry of the State of New York, G. A. Smith.....	
Creameries Past and Present in New York State, W. E. Griffith.....	
Butter Making on the Farm, Edward van Alstyne.....	
The Law Relative to the Suppression of Bovine Tuberculosis, G. L. Flanders	
Bovine Tuberculosis, Dr. J. G. Wills.....	
Abortion, Dr. J. F. DeVine.....	
Anthrax, Dr. M. Hamilton.....	
Milk Fever, Dr. M. Hamilton.....	
Calf Cholera, Dr. E. L. Volgenau.....	
Dairy Breeds of Cattle, Jared Van Wagenen, Jr.....	
Improvement of Pastures, J. W. Sanborn.....	
Leguminous Crops for the Dairy Farm, E. R. Minns.....	
Soiling, Summer and Winter, F. S. Peer.....	
The Silo—An Economical Factor in Dairy Feeding, Edward van Alstyne.	
Purchased Grains for the Dairy, D. P. Witter.....	
First Principles in Breeding, F. S. Peer.....	
Advanced Registry Work, Dr. E. J. Russell.....	
The Birth and Rearing of the Dairy Calf, Jared Van Wagenen, Jr.....	
The Cow Testing Association, the Solution of Economical Milk Production, A. J. Nicoll.....	
Starting a Cow Testing Association Under Difficulties, John A. Ennis....	
County Breeders' Association, E. S. Savage.....	
New York Dairymen's Association, W. E. Griffith.....	
History of the State Fair Dairy Exhibit, G. A. Smith.....	
The Dairy Paper, W. D. Heard.....	
Statistics	

This bulletin is intended to give definite information on all matters pertaining to the practical breeding and handling of dairy cattle and their products, as well as to record important facts concerning matters affecting the dairy interests of the state as a whole.

In March, Bulletin No. 57 was issued, entitled "Potato Growing in New York State," containing 119 pages and 33 illustrations. The following is table of contents and list of authors:

CONTENTS

Introduction	
History of the Potato, Edward van Alstyne.....	
Potato Soils and Their Preparation, Prof. Alva Agee.....	
Seed Selection and Breeding, C. H. Myers.....	
Some Causes of Poor Stands of Potatoes, F. A. Sirrine.....	
New European Potato Diseases, G. G. Atwood.....	
Fertilizers and Manures for Potatoes, Edward van Alstyne.....	
Planting and Cultural Methods, Daniel Dean.....	
Potato Insects, Bentley B. Fulton.....	
Potato Diseases in New York State, M. F. Barrus.....	
Spraying, Prof. F. C. Stewart.....	
Essentials in Marketing, R. H. Cooper.....	
Successful Cooperative Marketing, W. H. Ingling.....	
Cortland County Potato Growers' Association, E. H. Forristall.....	
Potato Machinery, C. R. White.....	
Potato Growing on Long Island, H. R. Talmage.....	
The Potato Situation in Western New York, C. R. White.....	
Potato Growing in Northern New York, C. B. Tillson.....	
The Potato as a Food, Ida S. Harrington.....	
Statistics	

This bulletin was issued to meet the continually increasing demands coming to the Bureau of Farmers' Institutes for information relative to potato soils, cultural and remedial methods, as well as to place before all interested the important facts relating to the danger from new diseases and their prevention, and to show the potato-producing portions of the state. With the other monthly bulletins of the Department of Agriculture these publications are sent to those on the regular mailing list and to others who make special request for information along either of these lines. They may be obtained on request to the Department of Agriculture or through the farm bureau agents throughout the state.

In addition to the eight articles contained in this Report of Farmers' Institutes on the important cereal crops of the state, the bureau will issue as Part II of this report a special women's

bulletin, compiled by Mrs. Ida S. Harrington, head of the Women's Department of the Farmers' Institute, containing matter relating to the women's work and articles intended to be of especial value to the home.

A bulletin on "Swine" is in preparation, and will be issued in October as Bulletin No. 63, and one on "Poultry," in the compilation of which the Director has the assistance of R. P. Trask of the institute staff, will be issued as Bulletin No. 64 in November. A bulletin on "Rural Sociology," is also in the course of preparation. It will be edited by Reverend Charles S. Tator, of Northport, L. I., who has rendered most efficient service in the Rural Life Conferences.

These are noted in order that any interested may make request for them and thus receive them immediately after publication.

CORRESPONDENCE

Aside from the great amount of correspondence of a purely business nature, relative to matters connected with holding meetings, and the different lines of work at the Bureau of Farmers' Institutes, already set forth in this report, the bureau has grown to be one of information. Scarcely a day passes but letters are received asking for specific information on all matters pertaining to farm practices, often referring to advice given at institutes. To meet these requests has been a chief reason for the special bulletins and circulars sent out by the bureau, which often give in detail the particular information asked for. When the writer is located in a county in which there is a farm bureau he can usually be put in touch with the farm bureau manager and so receive first-hand information. Where the problem is one of sufficient magnitude and the inquirer is willing to pay the expenses of a representative of the department, one is sent to give advice personally.

Hundreds of letters are written in addition, giving such advice as is possible from a distance. The Director's intimate knowledge of the state and its agriculture frequently enables him to give quite specific directions.

Many letters are received from young men seeking employment or wishing to purchase farms with the idea of permanently engaging in farming. Such often receive material assistance from the Bureau of Labor and Statistics.

During the past year letters have been received from Sierra Leone, West Africa, and Belgium, as well as from all parts of the United States.

While this adds materially to the work of the office there is no part of the work of the Bureau of Farmers' Institutes more gratifying, for it indicates the confidence which has been established during the years of its existence in the minds of the people as to the practical character of the advice given; and brings not only the bureau but the Department of Agriculture in continual touch with the people in all sections of the state.

ADDRESSES AT FARMERS' INSTITUTES

[1933]

RYE

JARED VAN WAGENEN, JR., LAWYERSVILLE, N. Y.

Farmers' Institute Lecturer

BOTANICAL RELATIONSHIP

Rye (*Secale Cereale*) is one of the minor cereals, being a member of the great grass family. In its botanical relationship and manner of growth it is more closely comparable to wheat than any other grain, but there are important structural differences. The wheat grain in germinating gives rise to a whorl of three primary rootlets, while the young rye seedling has four. The kernels of wheat are entirely enclosed within the glumes, while in the case of rye, the individual grains are partially exposed. The heads of rye are longer, more slender, more compressed or flattened, and there is a larger number of joints or rachises in the heads. The kernels of rye are more slender and markedly pointed at the end of attachment. The suture or crease is very much less marked than in wheat, while the surface of the kernel is wavy or wrinkled and the texture is exceedingly tough and hard, requiring more power to mill than any other grain. The beards and glumes are very firmly attached to the rachis, hence forming comparatively little chaff in threshing. The culms or stalks are much longer and more slender in rye. Examined by the trained eye of the botanist, the two plants exhibit many differences. The young rye seedlings, unlike wheat, have a markedly reddish color when they appear above ground and the early growth is more spreading or decumbent.

Rye "heads" or shoots the culm some time in advance of wheat, but the date of ripening is only about one week earlier. The large anthers are exposed and shed their pollen in great profusion, so that on bright, windy days it may sometimes be seen drifting down the field like thin yellow dust. The leaves of rye lose their vitality before maturity and the surface of the stalk performs the functions of the leaves. Rye is notably a hardy plant and is grown further north than winter wheat. On the other hand, it endures hot weather very well and perhaps no

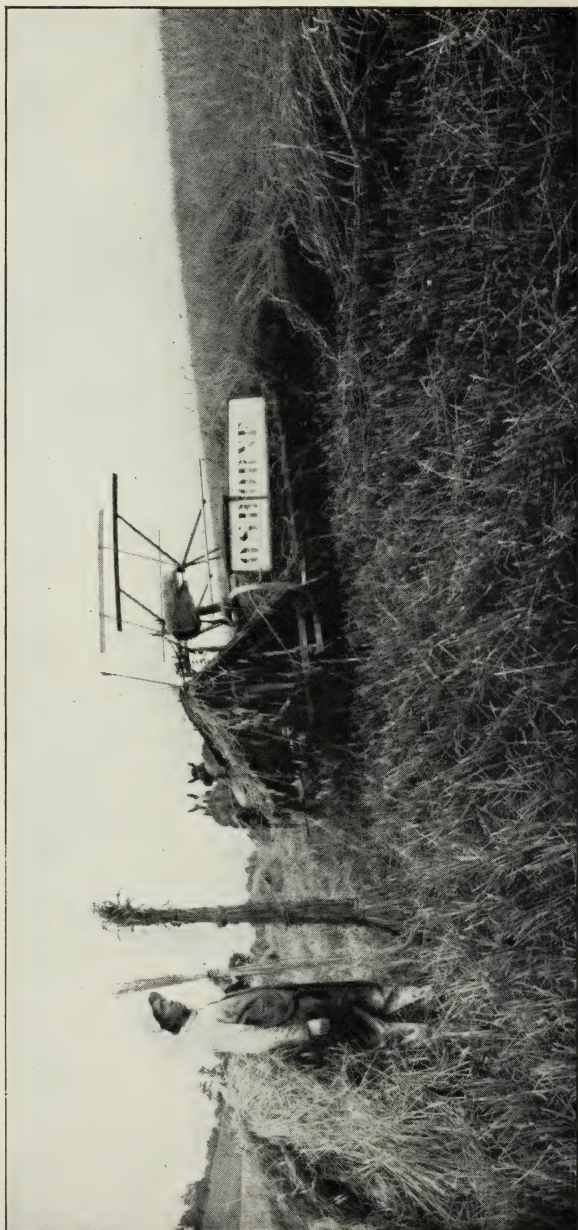


FIG. 276.— RYE, SEVEN FEET TALL, GROWN ON THE CLAUSEN FARM, SHARON SPRINGS, SCHOHARIE COUNTY, N. Y.

other grain is successfully grown through so wide a range of latitude.

Like most of our cultivated plants, the history of rye is lost in the mists of far off centuries. It has been grown for at least 2,000 years, yet the remains in the middens of the Swiss Lake dwellers indicate that it came in later than either wheat, barley or spelt. De Candolle in his great work on the "History of Cultivated Plants" thinks that it came originally from around the Caspian Sea, but doubts if it still persists in the wild state. The Greeks did not know it and the Romans spoke of it as a strange grain grown by the barbarians of the north. One thing at least is true, that it is a plant of decreasing importance in the economy of the race. First barley and later wheat have driven it out of the warmer portions of the world. It still remains the bread grain of northern Europe. In the United States it is mainly the peculiar value of the straw which has retained a place for it in our agriculture.

DISTRIBUTION

Rye is grown over a great portion of the temperate regions of the world and is the principal grain of Russia and Scandinavia. Its total production is believed to be equal to about one-half that of wheat. In the United States, the annual production is about thirty million bushels or less, and this amount has shown little change for forty years.

Pennsylvania, New York, Wisconsin and Nebraska are the states of largest gross production, but New Jersey grows nearly as much rye as wheat—the only state of which this is true. This is due to her proximity to the great cities, where the straw brings high prices. Doubtless the advent of the automobile, and the consequent decrease in horses, will make a less profitable market for rye straw. New Jersey and three or four counties of eastern New York represent the localities where rye growing is most highly specialized.

SOILS

Rye has no very special soil requirements, thriving on all soils that are well drained. Like wheat, it is intolerant of wet feet. The fact that it will make a fair growth on soils too light for

wheat has given it the reputation of being specifically a poor land crop and has tended to drive it from the more fertile soils. Along with white beans and buckwheat it bears the unfortunate reputation of being the crop of the poor farmer and the barren field. Truly, it is a tough, hardy plant, gathering plant food enough to grow in unlikely locations, yet at the same time it can make excellent use of fertile soils. The farm of the writer is a strong, upland glacial clay soil which grows wheat excellently, yet he has found rye the more profitable crop. It does well on the lighter sands, but good drainage and, if possible, a winter snow blanket are hardly less important than with wheat.

FERTILIZERS

The same principles of fertilization apply to rye as to the other small grains. Farm manure applied as a top-dressing and harrowed in before seeding is ideal for lands where fertility is somewhat deficient. On naturally strong land, this practice may result in too rank a growth with lodged and discolored straw. On most land, phosphorous in the form of acid phosphate seems especially indicated. In the personal experience of the writer, 250 pounds per acre of treated rock has made the difference between a crop that lodged early and filled very poorly, and one which stood up and gave a most satisfactory yield of grain and bright straw. A little available nitrogen at time of seeding is very valuable on soils of low fertility, but on strong lands its use is to be avoided.

SEEDING

The usual practice in the East is to sow about two bushels per acre or less on strong soil. According to Hunt, one hundred kernels of average rye will weigh about two and one-half grams. This is equivalent to approximately one million kernels per bushel. The size of kernels varies widely, however, in different samples. In the latitude of Central New York, sowing may be made as early as the last week in August. It may also be deferred until so late that the seed barely germinates before winter, and fair crops are sometimes secured by this rather slovenly method. The writer once sowed oats which had by accident a

considerable sprinkling of rye. The rye grew with the oats that summer and gave a very noticeable stand in the clover the next year. Rye may safely be sown earlier than wheat, as it has less tendency to shoot the head in the fall.

PLACE IN THE ROTATION

Rye nearly always takes the place of wheat in the rotation. There is surely no better crop with which to sow grass seed. In localities where both wheat and rye are grown it is a common belief that rye offers the better chance for a "catch" of clover.

On Long Island a great deal of rye is sown following early potatoes, either as a cover crop or to cut soon after heading to be sold for bedding without threshing. In the New York counties referred to it often follows ensilage corn.

VARIETIES

Varieties of rye are certainly not well marked. In New York State men speak of "white" rye and "common rye". The names, "Mammoth," "White Winter" and "Giant Golden Straw" have figured in seed catalogues. It seems to be a plant subject to only slight variations and its commercial importance has been too slight to lead to much effort toward establishing distinct strains or improving the type. It is possible to hybridize wheat and rye, but the results seem to have had no especial value. Like wheat, it has both a spring and a winter form, but the latter is raised almost exclusively in America.

HARVESTING AND HANDLING

Rye presents some rather special problems in harvesting. Its very long, slender, tough straw, with its tendency to lodge, often taxes or goes beyond the capacity of the ordinary grain binder to handle it. Tangled and lodged rye straw, six feet or longer is a rather appalling proposition. Usually it will be possible to get along, however, if it is thoroughly dry and cutting is done on only two or three sides of the field. Sometimes it is cut with a self-rake reaper and bound by hand. Four or five active men accustomed to the work will follow the reaper. This is pretty expensive harvesting, but it may be the best way in the end.

Rye continues to find a place in our agriculture mainly because of the special value of the straw. Through a series of years, bright, long, clean rye, bound in bundles and baled in large bales, will approximate good timothy hay in price. To sell satisfactorily, it must be kept straight and bound in bundles before baling, either with bands of straw, which was the older method, or with binder twine, which is done by modern machines. It is threshed, not with the ordinary type of threshing machine, but with the "beater", which is a thresher with a cylinder about six feet long, armed with only slight corrugations instead of teeth. The sheaves from the field are unbound and run through this, not head first as with other grain, but lying parallel to the axle of the cylinder and then immediately re-bound. Rye straw must be baled in the large open-top presses of the so-called "railroad" type.

A ton of rye straw per acre is a fairly satisfactory yield and two tons is very exceptional. In 1911, the writer grew twenty-four tons on fourteen acres and there were surely parts of the field that reached two tons. The yield of grain is normally less than wheat under favorable conditions, twenty-five bushels being an excellent crop. The yield for the country at large is about two bushels per acre more than wheat, but rye is grown mainly in old settled districts and the yield is not pulled down by the careless farming of the bonanza wheat belt.

MARKETING

The produce exchanges recognize four grades of rye, ranging from that which is clean, sound and dry to that which is wet or mouldy. In nearly all states the legal weight is 56 pounds per bushel. During many years about one-quarter of the small crop of the United States has been exported.

USES

Much grain is largely fed on the farms where it is grown. It does not enjoy a good reputation as a food for milch cows, there being a popular idea that it causes cows to "dry up". There is perhaps no foundation for this, but because of the small percentage of protein it is not usually adapted to the cow. Fed to hogs, after being finely ground, it may be considered as satisfac-

torily replacing corn, and it is especially suited for feeding in connection with dairy by-products. Ground and mixed with wheat bran or oats, it is generally regarded as well suited for horses doing slow, heavy work. Fowls will refuse rye if any other grain is available. It is used to a considerable extent in the manufacture of spirituous liquors.

Quite a quantity of rye is made into flour — a few eastern mills making a specialty of that product. Rye bread is demanded mainly by the people from the north of Europe. Because of the fact that some of its protein is in the form of gluten, it makes, like wheat, a light and porous, although a dark colored loaf. It is probably slightly less nutritious than fine wheat flour.

PASTURAGE

Rye is often pastured in autumn and occasionally in the spring.

The writer knows from experience that outside of green wheat there is no feed that will make more milk than rye pastured in the fall. If care is taken not to allow cattle on it when the ground is too wet and soft, or to graze too closely, it is possible to secure a great deal of extra milk or flesh without material injury to the yield of grain for the next year.

SOILING

Rye has been widely advised as a soiling crop. It will give a considerable yield of forage earlier than any other plant and will thrive on lands of moderate fertility. It has one very serious fault, however. In the earlier stages of growth, the percentage of water is so large that there is little real nutriment and almost immediately after heading it becomes so tough and woody as to be unpalatable. As some agricultural wit has said, "There are just fifteen minutes when rye is fit to feed."

COVER CROP AND GREEN MANURE

Rye is not a nitrogen-gathering plant and hence its value for a cover crop is less than the legumes. Its advantages are that the seed is not very expensive, it can be sown very late in the fall and it will produce a considerable bulk of organic matter on land which will fail to give reasonable yields of clover or other legumes.

If used as green manure, care should be taken to plow it under before it has gotten so large as to be hard and woody, hence decaying slowly and shutting off the ascent of soil water by capillary attraction.

STRAW

The straw is used not only by fastidious horsemen for bedding but also for making paper, strawboard, packing nursery stock, crockery and other uses. In the days of beef exportation, it is said that New York City used a carload a day for that purpose alone.

ENEMIES

Rye has few special foes, either insect or fungus. In the West, like the other cereals it is subject to the attacks of the chinch bug.

It is also liable to at least two forms of fungus or rust affecting the leaves and stalk. These are sometimes serious, both in causing shrunken grain and in discoloring the straw and hence lowering its sale value. All that can be done is to avoid the use of nitrogenous manure and to sow on locations which have good air drainage. Rye straw from the hill tops is usually of much better quality than when grown on alluvial valley soils.

One fungus of especial interest is "ergot," or "spurred" rye. This attacks the rye kernels, causing them to greatly enlarge and become a horny mass. It is reported as common in Europe and in Nebraska but it is not often met with in New York or New Jersey. It has long been used as medicine in obstetrics. When occurring in large amounts it is a dangerous poison, causing abortion and also gangrene of the extremities. Very serious trouble among both humans and animals have been reported in Europe following the use of rye affected by ergot.

TABLE SHOWING ACREAGE OF RYE AND NUMBER OF BUSHELS PRODUCED IN NEW YORK STATE BY COUNTIES (U. S. CENSUS, 1910)

	Acres	Bushels		Acres	Bushels
Albany	10, 441	164, 359	Columbia	18, 280	230, 195
Allegany	346	6, 385	Cortland	44	913
Broome	745	12, 244	Delaware	254	3, 609
Cattaraugus	124	2, 287	Dutchess	6, 449	80, 229
Cayuga	585	11, 326	Erie	3, 346	55, 579
Chautauqua	454	8, 841	Essex	92	1, 127
Chemung	2, 923	43, 505	Franklin	438	5, 549
Chenango	71	1, 104	Fulton	196	2, 350
Clinton	286	3, 232	Genesee	971	16, 778

Acres		Bushels		Acres	
Greene	4,048	58,468	Richmond	38	920
Hamilton	2	35	Rockland	852	13,826
Herkimer	104	3,560	St. Lawrence	311	4,208
Jefferson	239	2,461	Saratoga	6,645	103,261
Kings .....	.....	.....	Schenectady	2,591	40,259
Lewis	88	1,129	Schoharie	2,218	34,207
Livingston	3,866	69,791	Schuyler	1,882	28,024
Madison	115	1,734	Seneca	1,189	22,467
Monroe	5,392	101,586	Steuben	5,097	71,102
Montgomery	486	8,967	Suffolk	1,981	29,702
Nassau	662	12,280	Sullivan	1,715	23,532
New York .....	.....	.....	Tioga	1,508	21,591
Niagara	1,496	28,141	Tompkins	1,282	22,004
Oneida	423	7,572	Ulster	6,905	103,132
Onondaga	688	11,594	Warren	323	3,125
Ontario	2,987	51,700	Washington	4,457	70,016
Orange	2,777	48,960	Wayne	2,314	42,062
Orleans	673	13,153	Westchester	1,093	18,912
Oswego	524	6,771	Wyoming	457	9,169
Otsego	130	2,395	Yates	3,179	51,017
Putnam	254	4,559			
Queens	51	1,254	Total	130,540	2,010,601
Rensselaer	13,453	213,343			

THE OAT CROP IN NEW YORK STATE

CHARLES S. PHELPS, CANTON, N. Y.

Farm Bureau Manager, St. Lawrence County

Like all our cereal plants the exact origin of the oat is difficult to trace. The oat belongs to the genus *Avena*, but there is some doubt as to whether all cultivated kinds trace back to the same wild species. There are three distinct types of oats in cultivation to-day and many botanists are inclined to the opinion that these trace to three distinct wild species. We have the common oat, with head or panicle branching on all sides, the "side oat," which has the panicle branching only on one side, and the naked or Chinese oat, in which the kernel separates readily from the hull or husk when the grain is threshed. Oats have not been grown under cultivation nearly so long as wheat, rye or barley. They are not mentioned in the history of the Egyptians nor in the accounts of the early Hebrew nation, nor did they appear to be known to the early Romans. There is evidence which tends to show that oats came into cultivation, by civilized peoples, in southern or central Europe. The plant was known to the pre-historic inhabitants of central Europe, as the grain has been found in the remains of the lake dwellers of Switzerland.

It is evident that this plant originated in a cool climate, or at least a climate with cool summers, for the crop always thrives best in the cooler sections of the world and declines in yield and weight of grain per bushel wherever grown in hot climates. Oats are more modified by climate than either wheat or barley. The heaviest and best grain is produced in moist, cool sections. The largest acreage and the heaviest yields are produced in the northern sections of both Europe and America. The range in the legal weight per bushel in the different states of this country is much greater than for other cereals. It varies from 26 pounds in Maryland to 36 pounds in Oregon and Washington. This, of itself, is a general recognition of the fact that oats vary greatly as a result of climatic conditions.

In New York State the oat crop ranks third in value of our farm crops, being exceeded only by the hay and potato crop. For the years 1900 to 1909 the average yield per acre in this state was 31.3 bushels. This yield is low and effort needs to be made to increase it. Less effort has been made to improve the crop, either by plant breeders or farmers, than in the case of wheat or corn. The

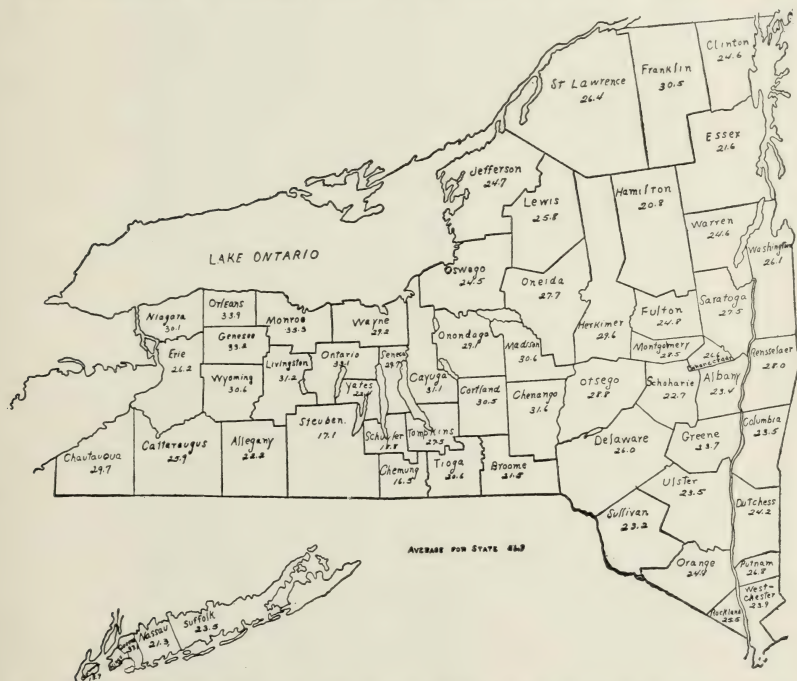


FIG. 277.—MAP OF NEW YORK STATE, SHOWING AVERAGE YIELDS OF OATS FOR 1909 IN THE DIFFERENT COUNTIES.

general opinion prevails among farmers that varieties of oats “run out” when grown on the same farm for quite a period of years. This is not found to be the case with corn and wheat, and need not be the case with oats if care is taken in seed selection.

OATS IN A DAIRY FARM ROTATION

Oats is a valuable crop in our state because it fits in well with rotations used on many dairy farms, and is a valuable feed for most kinds of live stock. A common rotation on a large part of the dairy farms of this state is corn or potatoes followed by oats, and

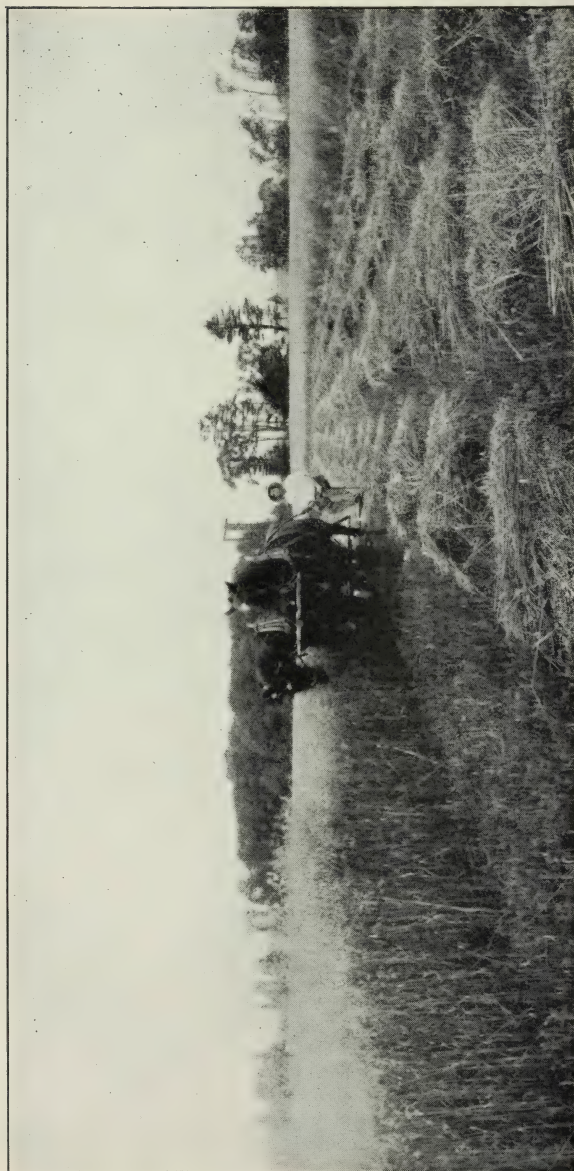


FIG. 278.—OATS GROWN BY C. R. BOMBECK, GLENMONT, ALBANY COUNTY, N. Y.

this by two or three years of hay. The oat crop fits into the labor scheme of a dairy farm because the preparation and seeding of the land is done before corn planting season arrives, and the harvest comes between the haying and the corn harvest. During the period of high priced grain feeds which has prevailed for several years, oats or oats and barley mixed, have made a valuable home-grown grain feed to help meet the needs of the dairy herd. With a good crop of oats and barley and a liberal supply of well manured silage corn, together with clover, hay or alfalfa, the dairy farmer can be nearly independent of the feed market. If he does have to supplement the home-grown grains, he can limit his purchases to high protein feeds. There is an increasing demand, too, for pure varieties of oats of high yielding qualities for seed purposes. Many farmers might find greater profit in raising seed oats than in feeding the entire crop.

VARIETIES OF OATS

Most of the varieties of oats now grown in this state were introduced from the northern sections of Europe. In many cases these have not been suited to our soils and climate and have had to pass through a period of adaptation in order to become accustomed to their environment. By growing several varieties for a period of years, however, it is possible to find what varieties give the best yields. The Department of Plant Breeding of Cornell University reports the following yields of commercial varieties covering a period of three years, 1911 to 1913. While the yields shown here are probably larger than would be obtained on most farms, owing to the careful method of culture used, the results are doubtless comparable, as the conditions under which the varieties were grown were the same in every case.

YIELD OF THE COMMERCIAL VARIETIES, TOGETHER WITH SOME OF THE HYBRIDS
AND SELECTIONS GROWN, 1911, 1912 AND 1913

Variety	1911	1912	1913	Average
Silvermine P. B. 1571.....	70.7	66.3	71.3	69.4
Great American	66.2	69.3	68.0	67.8
Twentieth Century	64.7	70.8	67.6	67.7
123-5	64.0	69.8	68.9	67.6
Lincoln	58.9	70.4	70.2	66.5
120-9	62.0	67.3	69.5	66.3
Silvermine S. P. I. 21385	64.8	60.9	66.5	64.1
Danish Island	53.8	64.8	66.8	61.8
27a1-31	50.8	64.9	67.8	61.2
Long's White Tartar	51.3	62.3	68.0	60.5

Variety	1911	1912	1913	Average
34a1-11-2	58.1	57.3	61.8	59.1
Swedish Select P. B. 1575	47.8	61.7	56.6	55.4
5938-1	49.5	55.2	55.7	53.5
Swedish Select P. B. 2036	45.5	55.9	58.2	53.2
Welcome	41.5	56.5	57.5	51.8
Black Tartarian	45.8	52.0	55.9	51.2
White Tartar King	38.0	52.3	59.9	50.1
Golden Giant Side.....	47.1	47.8	48.3	47.7
Sixty Day	46.2	41.7	47.5	45.1
Early New Market	36.1	44.8	53.7	44.9
Early Champion	46.0	39.7	42.5	42.7
Red Texas	30.6	37.7	50.9	39.7

There is also considerable variation in the proportion of hulled kernel or meat, in different varieties. The yield of oats should not therefore be the only basis for comparing varieties. If a variety has a thick hull, which portion of course is of little food value, the proportion of real meat, and also of digestible nutriment, will thus be reduced. The following table shows that some of the commercial varieties of oats examined at Cornell for the proportion of meat or hulled oats varied from 59 per cent. to 71.1 per cent. by weight, before hulling. This means that a bushel of oats of 32 pounds would in the one case contain 22.7 pounds of hulled oats, and in the other case 19 pounds of hulled oats. In other words the highest yielding variety, as indicated by the bushels harvested, might not prove to be the most valuable variety when measured by its actual food value.

WEIGHT PER BUSHEL AND PERCENTAGE OF MEAT OR HULLED KERNEL

Variety	Weight per bushel lbs.	Hulled kernel per cent.
Lincoln	31.8	69.0
White Tartar King	34.3	68.8
Danish Island	31.7	69.5
Welcome	33.0	68.9
Silver Mine	32.4	67.4
Long's White Tartar.....	32.5	69.1
Great American	32.6	66.4
Twentieth Century	32.4	67.2
Clydesdale	32.0	68.2
Storm King	31.2	59.0
Great Northern	32.2	66.7
Goldfinder	29.8	67.4
Colossal	31.3	68.1
White Russian	33.5	65.0
Mortgage Lifter	33.6	68.7
Black Tartarian	32.0	65.2
American Banner	39.4	68.3
Sensation	33.3	67.9
White Bonanza	31.9	67.7
New White Cluster	32.4	69.5
Sixty Day	28.9	71.1

IMPROVEMENT OF VARIETIES

As oats do not mix readily in the field it is an easy matter to test out several varieties side by side, to ascertain which gives the largest yields. This should be followed up for a period of years. By examining the hulls it is easy to discover, approximately, the thick and the heavy hulled kinds, and the thick hulled sorts, unless exceptionally heavy yielders, should be discarded. By several methods of selection it is possible to improve the yield of any variety of oats. Some of these methods are so simple that they should be adopted on every farm. By carefully screening and discarding from seed oats all light weight seed, the yield may be improved. The small, poorly matured oats, commonly grow on the weaker and poorly developed plants. By discarding all light seeds and sowing the heavy plump ones, the proportion of strong, vigorous plants will be increased and the crop thus be improved. This method of selection should be practiced together with light seeding, as the stronger and more vigorous the individual plants become the more space they will need for the best development of grain.

After the farmer has decided, by several years of practice, that some one of several varieties is well suited to his soil and climate, he is then in position to make further improvements. A simple method of selection that anyone can follow is known as the "mass selection." By examining a field of oats before harvest, it will be noticed that some plants, even where the stand is uniform, are more vigorous and bear larger heads than others. By selecting the best heads from plants with stiff straw, several quarts of seed may be gathered and carried over to the next season. The seed thus selected should be grown on a small area apart from the other oats, and the seed from this small plot, if planted separately the next year will produce enough to plant several acres. In this way the farmer may, in a few years, develop an improved strain with little extra labor. This is the method commonly used in selecting seed corn, but in the case of oats it is usually not practicable to select from the general field enough choice seed the first year, to grow the entire crop of the farm the next year.

A more accurate, though more painstaking method is the one known as "individual selection." By picking out 50 or 100 choice heads of oats and saving the seed of each head in separate packages,

the seed from distinct plants may be grown separately in drills, the next year, and the seed progeny of each original plant can be saved the second year. By continuing to plant in drills and saving the seed of the direct descendants of the original plants for several years, it is possible to know which plants show a high yielding and which a low yielding tendency. In this way an exceptionally



FIG. 279.—FIELD OF OATS ON FARM OF EDWARD VAN ALSTYNE, KINDERHOOK, N. Y.
YIELD, 65 BUSHELS PER ACRE.

high yielding strain may sometimes be developed in the course of a few years.

SEED TREATMENT

The oat smut is one of the most destructive of the smuts that infect our cereal crops, but fortunately it is a disease that is easily controlled. We are apt to underestimate the amount of the damage because the smut is not generally noticed in the threshed grain.

By counting the number of heads of smutty oats on a few square rods, just before the harvest, one will be surprised at the prevalence of the disease. The loss in yield from smut will often be from five to eight bushels per acre. This is a considerable loss as compared with the simple and inexpensive method of seed treatment. The smut disease is carried over on the seed, though its presence may not be noticeable. As far as is known this is the only source of infection to the new crop. Several methods of seed treatment have been practiced, but the one now most generally and widely used is the formalin method. This consists of sprinkling the seed shortly before sowing with a weak solution of formaldehyde, commonly sold as 40 per cent. formalin. One-half pint of 40 per cent. formaldehyde diluted with 25 gallons of water will treat 25 bushels of seed. The seed should be spread about three inches deep on a clean floor and then sprinkled with the weak solution just described. After sprinkling the surface of the mass it should be shoveled over and sprinkled again, and this process continued three or four times, or until all the seed is well moistened. The seed should then be thrown into a pile and covered with blankets or old sacks for 15 to 20 hours, and then spread out and dried. After the seed is dried it may be placed in sacks that have previously been soaked in the same solution. As the oats will swell somewhat from the wetting it may be found advisable to increase the amount registered to be sown by the drill above what was expected would be sown of the original seed.

PREPARATION FOR THE OAT CROP

In many sections of New York State poor soil drainage is a great hindrance to seeding at the proper time. It is a common observation that early seeding is essential to the best growth of oats. Late seeded oats commonly rust badly and seldom give large yields. Most farms have certain areas that are too wet for early fitting of the soil, and frequently, before these wet areas can be worked, other areas on the same field are too dry. The tile draining of these wet spots will often prove very profitable, not only because it improves the areas in question but because it makes the whole field more economical to work, besides adding several weeks to the earliness of seeding. In the province of Ontario, a large

number of farmers, reporting on the advantages of drainage, said that they found that, on the average, spring seeding could be done three to four weeks earlier after drainage than before.

In many sections "quack grass" is a serious pest. The best way to handle this weed is to kill it before or during the growth of the corn crop which precedes the oat crop. If this has not been accomplished it is a good practice to plow the corn land rather shallow as soon as the corn is off the land and to disk the soil once a week till the ground freezes. This land should be deeply plowed the next spring and be fitted by shallow harrowing so as to smother the quack.

Over much of this state the soil is usually plowed in the fall preparatory for oats, and the following spring is fitted by disking just before seeding. Fall plowing has been condemned by some writers on agricultural subjects because it leaves the soil exposed to washing and blowing, for several months, and possibly to some loss by the decomposition of organic matter. In the case of soils that are easily washed or where ground is frequently not frozen during winter or spring, the loss from washing may be serious. In New York State, however, except on sandy or gravelly soils with considerable slope, or in any section where erosion is common, I believe fall plowing to be a wise practice.

As an economy in labor, it provides for the plowing at a season when other work does not crowd. On clay soils it improves the tilth by leaving the loose surface exposed to the action of freezing and thawing. On many fields of stiff clay soil, by the time it is well dried out in the spring, there will be sections where the soil is so baked that it cannot be properly plowed and disked preparatory to seeding.

The proper fitting of the soil for the oat crop, where clover and timothy are to be sown with the oats, is especially important over much of the state, and especially the northern counties this method of seeding is a common practice. The clover and grass seed needs to be lightly covered and if the soil is left lumpy it dries out quickly and a poor "catch" results. The plank drag or roller are two useful implements to use in connection with disking. After disking four to eight times, according to the nature of the soil, lumps

can be pulverized by the roller and by the plank drag or clod crusher, and later by shallow harrowing, the surface may again be made loose.

THIN SEEDING

There is a wide difference, throughout the state, in the amount of seed sown to the acre. In the old practice of hand sowing four bushels to the acre was common. Since the introduction of the grain drill the tendency has been to cut down on the amount used till now from two and one-half to three bushels are commonly recommended. The general tendency is toward even thinner seeding. Varieties that stool heavily should be more thinly seeded than those that stool but little. Thin seeding leaves more space for the young clover and grass to become established and also favors the growth of stiff straw so that the lodging of oats is less common. In general two bushels of well cleaned oats to the acre is better than heavier seeding. For the past four years the State School of Agriculture at Canton has obtained, under ordinary farm culture, an average yield of a little over 51 bushels to the acre with a seeding of 1.85 bushels to the acre of carefully screened oats.

OATS AND PEAS OR OATS AND VETCH

As the oat plant is comparatively low in protein it is always well to grow some legume crop with it when growing it for green feed or for hay. Before the introduction of the reaper it was a common practice to grow Canada field peas with oats as a mixed grain and this combination made a more valuable feed than oats alone. This practice is still followed in some sections but, if over one-half bushel of peas per acre is used, the vines will tangle in the reaper. One peck to one-half bushel of this seed with one peck of barley and not more than one and one-half bushels of oats makes a very good combination for a mixed grain feed. Within a few years, in some northern counties, winter or hairy vetch has been grown with oats, with encouraging results. The usual practice followed is to sow 10 to 12 pounds per acre of the hairy vetch by mixing the seed with the oats. The vetch will be well supported by the oat plants

as it is a light vine which rarely causes the latter to lodge. The vetch will not seed before the oats are ready to harvest for grain but the fodder will add much to the feeding value of the oat straw. The vetch will make a rank growth after the oats are cut and it can be safely fall pastured. As far as tested the vetch has been found to live over winter well and to add to the value of the clover and timothy crop for the first year. The usual seeding of oats, clover and timothy should be made in addition to the vetch.

If the oat crop is grown as a soiling or hay crop, vetch or peas should always be grown with it. The proportion of oats and peas commonly used is, 2 bushels of oats and 1 of peas, or $1\frac{1}{2}$ bushels of each. The vetch seed being much smaller than the pea seed should be used in quantities of from one-third or one-half bushel to two bushels of oats. The cost of one-half bushel of winter vetch seed will be about the same as a bushel and a half of pea seed. The vetch makes a finer fodder either green or dry than the peas. Vetch has a higher percentage of protein than alfalfa and in the northern sections of this state, seems more hardy.

THE OAT HARVEST

Little need be said in regard to the oat harvest more than to call attention to the importance of prompt cutting before the oats are over-ripe. If one waits until all the straw is yellow some portions will be inclined to shell badly. With the uncertainty of weather conditions it is also important to store the crop under cover. Uncovered stacks are a great risk in our climate. Few men know how to build oat stacks so as to keep out the rain. If stacking is necessary a canvas cover or heavy covering of meadow hay should be provided.

USES OF OATS

The best way to make use of oats on most farms is for feeding horses and dairy stock. In feeding to most kinds of stock, oats should be ground. The increased cost of the ground feed pays well for all animals except possibly poultry and driving horses.



FIG. 280.—FIELD OF OATS, STATE SCHOOL OF AGRICULTURE, CANTON, N. Y.

Oats and barley mixed with a small proportion of bran and cottonseed meal will make a valuable ration for dairy cattle. As oats are deficient in mineral matter it is well to use some bran or middlings as a part of the ration. Two hundred pounds of wheat bran with 600 pounds of oats and barley, and 200 pounds of cottonseed meal makes a good ration for dairy cows, when fed with a liberal proportion of clover and good corn silage. It is usually not possible to grow oats and barley enough to provide all the grain feed for the herd, and even if it were possible it is good economy to replace part of this grain with cottonseed meal or some other high protein feed. The common grains of the farm are all too low in protein to furnish a well balanced ration for dairy cows, and it is good practice to supplement these with some high protein feed. Oats are found to be useful feed for calves but, unless the oats are finely ground, it is well to sift out the hulls before feeding them to small calves. A good ration for calves can be made by mixing 200 pounds of finely ground oats, 100 pounds of standard middlings and 50 pounds of old process linseed meal.

TABLE SHOWING TOTAL ACREAGE OF OATS AND NUMBER OF BUSHEL PRODUCE
IN NEW YORK STATE BY COUNTIES (U. S. CENSUS, 1910).

Acres			Bushels			Acres			Bushels		
Albany.....	21,454		502,177			Onondaga.....	38,775		1,127,012		
Allegany....	42,151		935,955			Ontario.....	41,304		1,365,407		
Broome.....	12,950		278,170			Orange.....	4,749		114,215		
Cattaraugus.	31,058		803,741			Orleans.....	17,245		584,442		
Cayuga.....	38,920	1,210,652				Oswego.....	20,591		504,314		
Chautauqua.	28,467		846,513			Otsego.....	28,742		827,095		
Chemung...	15,371		253,138			Putnam.....	710		19,022		
Chenango..	13,945		440,758			Queens.....	33		1,225		
Clinton.....	26,380		649,439			Rensselaer..	18,456		516,979		
Columbia...	21,369		503,088			Richmond..	31		580		
Cortland....	13,028		396,974			Rockland...	694		17,680		
Delaware..	12,980		337,938			St Lawrence.	74,589		1,972,670		
Dutchess..	19,351		468,039			Saratoga..	15,819		435,812		
Erie.....	52,789	1,384,876				Schenectady.	9,326		247,945		
Essex.....	10,314		222,971			Schoharie..	25,190		573,010		
Franklin....	24,820		756,302			Schuyler...	15,531		291,237		
Fulton.....	8,801		218,517			Seneca.....	21,879		649,066		
Genesee....	21,048		698,648			Steuben...	70,992		1,216,138		
Greene.....	8,758		207,583			Suffolk.....	2,602		61,257		
Hamilton..	403		8,396			Sullivan...	5,969		138,200		
Herkimer..	17,264		511,560			Tioga.....	17,185		353,398		
Jefferson...	82,864	2,050,568				Tompkins..	21,727		596,746		
Kings.....	.....	.....				Ulster.....	9,583		225,235		
Lewis.....	25,922		668,966			Warren.....	1,612		39,595		
Livingston..	30,746		960,346			Washington..	25,322		659,913		
Madison....	23,261		712,637			Wayne.....	34,583		1,010,043		
Monroe.....	39,300	1,385,560				Westchester.	1,443		34,520		
Montgomery.	25,507		726,120			Wyoming..	29,925		915,608		
Nassau.....	205		4,361			Yates.....	19,389		435,232		
New York..	.....	.....							
Niagara....	33,080		996,239			Total....	1,302,508		34,795,277		
Oneida.....	26,006		721,449								

NOTE.—Attention is called to Cornell Experiment Station Bulletin No. 343, on "Oats," by H. H. Love.

BARLEY IN NEW YORK

JOHN H. BARRON, NUNDA, N. Y.

Farmers' Institute Lecturer

Barley is an annual cereal grain and has been cultivated since early times, when it was used chiefly for human food, stock feeding, and herbage. Since the introduction of better grains for human consumption, it has been grown for stock feeding and malting purposes.

It is widely adaptable as to growth, being raised successfully from California to Alaska, thus making it an almost universal plant for grain production. In New York it is grown with success from lowlands to uplands and is used to a great extent for feeding and fattening cattle, horses and hogs, being nearly as good as corn for that purpose.

SOIL REQUIREMENTS

The wide adaptability of the barley plant has made it come under the influence of all manner of soil conditions. The indications are that such have a more marked effect upon the yield, size, weight and composition than almost any other factor. It grows best on soils of gravely and sandy type, but where the clay and clay loams are well drained it grows well. The soil should be very fertile and have abundance of available plant food for the proper maturing of the crop. Barley is shallow rooted and therefore needs plenty of available plant food for growth.

FERTILIZERS

Most soils upon which barley is grown in this state need fertilizing with some form of the various commercial fertilizers or manure. Barley straws being comparatively short, will stand heavy manuring without being materially affected by lodging. If the straw does lodge, the filling of the heads of grain is not interrupted to any great extent, as is the case with wheat and oats. Stable manure and fertilizers for barley may be applied directly to the land in quantities such as is used for wheat pro-

duction. Perhaps it is better farm practice to apply the stable manure to the crop previously grown, and if further fertilization is needed, commercial fertilizers may be used. It has been found that barley as well as other crops responds to the use of different forms of fertilizers.

ROTATIONS

Barley should be grown in a rotation of crops, since it does not do well grown continuously on the same land. It is best to sow it after some cultivated crops as corn, potatoes or roots; but in many localities it is sown on freshly turned sod ground. It is usually followed by wheat or seeded down again with clover and timothy. When wheat is sown after barley, it does better than when sown after oats, since barley, being shallow rooted, does not draw as heavily on the soil as do oats.

Barley is used extensively as a nurse crop for alfalfa when it is sown in the spring. It gives the young alfalfa plants plenty of shade and does not deplete the soil of enough moisture to do them harm. When grown with alfalfa it is either cut for hay or allowed to ripen.

PREPARATION OF SEED BED

One of the most essential factors in raising barley to get the best yields is the thorough preparation of the seed bed. Fall plowing is preferable to that done in the spring, since it gives one a chance to prepare the seed-bed early. The land should be thoroughly disked and harrowed to the depth of three or four inches so that there are no lumps. If, after the harrowing is completed, there are many lumps, a planker or roller should be used to crush them. Then the land is ready for seeding. This is particularly important when it is sown in the upturned soil.

TABLE SHOWING TOTAL ACREAGE OF BARLEY AND NUMBER OF BUSHELS PRODUCED IN NEW YORK STATE BY COUNTIES (U. S. CENSUS, 1910).

Acres		Bushels		Acres		Bushels	
Albany	525	9,071	Clinton	1,517	32,853		
Allegany ...	2,270	39,080	Columbia ..	64	1,244		
Broome	57	1,842	Cortland ...	893	24,348		
Cattaraugus.	835	16,799	Delaware ...	131	3,140		
Cayuga	10,691	300,512	Dutchess ...	35	554		
Chautauqua.	1,727	36,392	Erie	1,098	23,061		
Chemung ...	618	8,713	Essex	515	9,395		
Chenango ...	185	4,939	Franklin ...	2,086	62,709		

	Aeres	Bushels		Aeres	Bushels
Fulton	88	1, 925	Rensselaer ..	109	3, 543
Genesee	2, 114	56, 997	Richmond ...	.....	8
Greene	91	1, 578	Rockland ...	12	168
Hamilton ..	1	40	St. Lawrence	2, 811	75, 975
Herkimer ..	610	16, 699	Saratoga ...	103	2, 462
Jefferson ...	3, 575	80, 141	Schenectady..	238	5, 641
Kings .....	.....	.....	Schoharie....	638	13, 582
Lewis	1, 605	41, 283	Schuyler ...	1, 968	30, 259
Livingston ..	2, 566	58, 676	Seneca	2, 358	55, 574
Madison ...	2, 353	66, 006	Steuben	4, 878	68, 098
Monroe	2, 795	73, 960	Suffolk	19	413
Montgomery..	284	7, 233	Sullivan	51	1, 091
Nassau	1	18	Tioga	308	4, 879
New York....	.....	.....	Tompkins ..	1, 916	46, 679
Niagara	1, 472	32, 237	Ulster	47	656
Oneida	896	25, 105	Warren	24	496
Onondaga ..	6, 295	166, 274	Washington..	94	1, 879
Ontario	5, 957	159, 584	Wayne	3, 243	70, 330
Orange	15	229	Westchester..	7	101
Orleans	2, 150	56, 496	Wyoming ..	2, 190	58, 860
Osvego	182	3, 646	Yates	2, 009	42, 087
Otsego	633	17, 280			
Putnam	3	22	Total ..	79, 956	1, 922, 868
Queens .....	.....	6			

SOWING THE SEED

Seeding is done either with drills or sown broadcast at the rate of three pecks to three bushels per acre, depending upon the nature of the soil. If an even germination is desired, it is better sown in drills. With even germination there is an even ripening of the grains; thus giving a more uniform quality of kernels which are much better adapted for malting purposes.

The time of sowing is from the first of April to the first of June, depending on the locality and earliness of the season. Barley is preferable to oats when it is sown with field peas after the first of July. Fall sowing of this crop is not practiced as it generally results in failure. When barley is sown with alfalfa, not more than three pecks or a bushel are used. When it is desirable to sow it on river bottoms or rich loams, it is advisable to sow not more than three or five pecks of seed, as if sown thicker it has a tendency to lodge.

HARVESTING THE CROP

One of the chief drawbacks to barley culture in the past has been the offensiveness of the beards when binding, threshing or other handling. This difficulty, however, has been somewhat

overcome by the use of the self-binding and self-feeding threshing machines and to some extent by the introduction of beardless barley. The latter has not proven a success; the grains being light, rather immature and of poor yielding properties.

Dew, rain and sunshine deteriorate barley for malting purposes, and the quality is often reduced one-half on account of discoloration of the grain. The discoloration does not effect the feeding elements to any great extent, and discolored barley should be fed, rather than sold on the market. To prevent this condition the barley should be harvested before the stage of ripening has advanced too far. If put in round shocks and capped with bundles, barley will cure nicely unless heavy rains occur. The bundles used for caps can be drawn in separately and threshed; the grain being used for feed or seed.

BARLEY DISEASES

Barley is affected by rust, mildew and smut. No effective remedy has been found for mildew and rust. Smut can be reduced by the formaldehyde treatment.

Smut is a fungous disease caused by spores lodging underneath the hulls of the grain. These small spores are blown by the wind from the affected heads to those not so affected, before the grain is ripe. These spores remain inactive until the grain is planted the following spring; then they become active and germinate with the grain. The result is that those kernels which have the spores under the hulls, produce straw with heads smutted.

There are two kinds of smut, the close or covered smut and the loose smut. The formaldehyde treatment is effective against the closed smut, but not against the loose or open smut. Hot water is now recommended for both kinds.

Treatment.—Add one pint of formaldehyde to twenty gallons of water and place the solution thus formed in a barrel or trough. Submerge sacks of barley in the fluid for ten minutes, then empty on the floor to dry. After the treatment, if the grain is covered with blankets or oil cloth for about two hours the fumes of the formaldehyde will draw more thoroughly through the grain and get to the spores, the result being more effective.

The hot water treatment has been found to be effective on both kinds of smut. The grain should be placed in sacks and soaked in cold water for twelve hours to soften the hull. Remove the sacks and let drain for an hour. Then submerge into a tank of water at a constant temperature of 130° F. and allow to remain not over six minutes. Provision should be made to keep the temperature constant, as it will be lowered when the grain is put in. It might be well to heat the grain in another tank where the temperature is a little under 130° F. The seed should be sown the same day or the day following, as it will sprout. After treatment it is necessary to use a slightly increased quantity of seed per acre, to overbalance the swelling of the grains.

BUCKWHEAT

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Farmers' Institute Lecturer

Buckwheat is one of the minor cereal grains and might seem of little importance from a casual glance at the census figures which give it but three-tenths of one per cent. for the crops of known acreage over the United States. However, when we stop to consider that our own state of New York and our sister state, Pennsylvania, together produce over three-fourths of the total crop with an annual value of nearly ten millions of dollars, then it assumes a degree of respectable importance to the York State farmer. Further, we must bear in mind that a considerable part of the acreage seeded is never harvested for grain, being used as soiling crop or green manure, which accounts in some degree for the rather low average yield of 17 bushels per acre. Also, there are very few farms on which buckwheat holds a permanent place in the rotation; it depends for its existence on the failure of other crops to large extent or to the amount of land on a particular farm that is too foul or impoverished to produce a profitable crop of other grain.

The variety of uses to which the crop may be put and its adaptability under discouraging conditions are the features which make buckwheat of special interest, and are the points which I wish to emphasize.



FIG. 281.— FIELD OF BUCKWHEAT
[1962]

To go back a respectable length of time and still keep this side of the deluge, it might be said that the plant is a native of the basin of the Volga and the shores of the Caspian Sea, whence it spread to central Europe in the sixteenth century. The date of its introduction to this country does not seem to be definitely known, but it was probably not long after the permanent settlement of the northern colonies. In passing, we should mention that buckwheat is a cool climate crop and does not succeed well in the South except at high elevation.

VARIETIES

Of the half dozen varieties represented in the state but two are of commercial importance — Silverhull and Japanese — and each has its stout champions. In general, the milling trade prefers the Silverhull, for it is claimed to give a greater percentage of flour and of higher quality, and for these reasons the market price is usually a little better. Of late years a special market for the Japanese variety has sprung up in the manufacture of certain patent breakfast foods, mostly made in Michigan, consequently the best market for Japanese is in that section. To compare their habits of growth and characteristics, Japanese grows much ranker; the grains are much larger, ranging from dark brown to black, and a large proportion of the grains ripen at the same time. Silverhull, as its name implies, has grains of a silvery gray color, mottled with brown; makes a well-branched, leafy growth, but not so tall; bears both blossom and grain at the same time, so that it is a matter of some experience to judge the most favorable time for cutting, and it usually yields a little better in most sections and does not shatter so badly in handling. Another variety worth mentioning is the Tartarian buckwheat, sometimes called “toothed” buckwheat or India wheat. It is distinguished by the toothed edges of the grain. This variety makes a more vigorous and hardy growth, but the grain shatters badly and makes a dark-colored somewhat bitter flour, so that it is not desirable for milling purposes. As a poultry feed, weed killer and soil improver it has a field for profitable development.

SOIL AND FERTILITY REQUIREMENTS

Buckwheat makes satisfactory yields on the greatest variety of soils from mucks and heavy clays to the lighter sands, on mellow soils or those so cloddy as to discourage most any other crop—it responds well and profitably to decent treatment. For all of its cosmopolitan character there is one condition to which it is very sensitive. It must have a firm seed bed, and the finer the surface fitting the better. As an arbitrary rule we like to allow at least three weeks between plowing and seeding, and if for any reason sod ground is to be used would insist on a greater interval. Acid or neutral soil conditions seem to make no difference to this crop, therefore no marked benefits may be directly expected from an application of lime. In fact, many experienced growers claim that successive crops tend to ameliorate extreme acid conditions of soil. The fertility needs of the crop seem to be quite simple. Although it is rather a heavy user of nitrogen, compared with the ordinary cereals, it seems able to get sufficient for its needs where the others cannot; possibly because it feeds much deeper in the soil than would be supposed from casually pulling a plant. The root system is fine and fibrous, and if a plant is carefully washed out when at full growth it will be found a deep and rank feeder. Little, if any, benefit to the crop is observed from an application of nitrogenous fertilizer, even on impoverished soils. Potash also seems to be a negligible factor with this crop on most of the soils of this state. Phosphoric acid seems in all cases to be the controlling factor, and in our experience a very small application brings remarkable results. Because of the short growing season it should preferably be in soluble form, but nothing more expensive than the high-grade 14 to 16 per cent. acid phosphate need be used. Although as little as 100 pounds per acre will show results, it is far preferable to use around 300 to insure an available surplus with the assurance that whatever is not needed will be an investment for succeeding crops. Bearing in mind that buckwheat will make a fair yield where other cereals cannot, that its season of growth is so short that it must necessarily gather its nutriment quickly and that the entire plant, with the exception of the grain, contains so little mineral matter that it quickly rots to humus; it ought

not to be necessary to say more concerning the old fallacy that "buckwheat is hard on the land." If practical experience is more convincing, I might cite a field that bore over thirty successive crops of buckwheat with no other treatment than an annual pittance of 100 pounds of commercial fertilizer per acre, with increasing annual yields, which, when it fell into kinder hands, produced far heavier yields of oats than the adjoining fields that had lain fallow or in pasture all those years.

SEEDING

When the lands were first cleared and in virgin condition a half bushel of seed per acre was the standard practice, but at the present time the rate of seeding must be doubled in most cases, and experience indicates that it is not wise to depart far from one bushel of seed per acre to produce a full crop of grain. For forage or soil improvement it might be well to make a somewhat heavier seeding. With heavy seeding the plants do not branch out and the crop is borne entirely on the top, thereby cutting down the yield. A heavy growth is much more liable to lodge and waste.

The best time to sow is a matter of opinion and experience. It ranges from the fore part of June to the early part of July for a grain crop. For other purposes any season that will give sixty days or even less of absolute freedom from frost will give a satisfactory growth. In our own experience we incline to the earlier planting dates, having uniformly secured the best yields from June sowing and meeting with indifferent results from sowing made after July 10. This might not be uniformly true for other sections, but our personal opinion is that much of the crop goes in at too late a date for maximum yields.

Another common error is in the depth of sowing. As a rule, spring sown grains do best with shallow sowing, but the buckwheat sowing season usually comes in a dry time when the surface soil is low in moisture, the grains are hard shelled and need considerable moisture for germination and deep-rooting cannot be secured with shallow planting. It would be unwise to state an arbitrary depth, as it would necessarily vary with the character of the land, but the depth should be greater than with oats or spring wheat.

HARVESTING

Possibly the best advice that may be given in print on the proper time for cutting is the rather indefinite one to begin cutting when the first grains are ripe and while some blossoms are still in evidence. If the harvest is delayed much beyond this period serious loss by shattering will occur. For a long time a serious prejudice existed against the binder as a harvest tool in the belief that it scattered and wasted much of the grain, and this opinion still holds in some communities where the cradle and drop reaper still hold sway, but the work of the binder is so much quicker — enabling the harvest to be completed at the best possible season — that it has been quite universally adopted by the large growers. The plants are still so succulent at cutting that it is the part of wisdom to bind in small loose bundles or drop small gavels so they will more readily cure, for this is the most important part if a bright grain free from mold is to be secured, and the other kind is not in much favor in the market. A great deal of moldy buckwheat is bought at a low price, renovated by the millers and sold at a considerable advance, resulting in great loss to the producers and a handsome profit to the millers.

The manner of setting up the bundles for field curing is also important. Where the cradle or reaper is used each bundle is generally set up by itself with simply a gentle twist to the top to make it hang together, or lightly bound by crossing and twisting a few straws, and this results in well cured grain. Where the binder has been used the tendency is to set up in too large shocks for good results. After every rain these must be opened, dried and reset, and if this occurs many times fully half the grain will be scattered on the ground. We prefer to set just four bundles in a shock and leave them without handling regardless of weather. If set straight they will dry nicely in place and cure both grain and straw nice and bright. A further saving will be effected if a canvas is used over the rack when hauling. A large part of the crop is thrashed direct from the field and little attention given the straw, which is quite generally considered of very low value. On the contrary, it has a higher feeding value than any of the common straws and may be turned to good ac-

count in seasons when better roughage is scarce. It compares favorably in feeding value with timothy and other non-leguminous forages, but is best used when silage forms a part of the ration. Without succulents it is not relished. However, there is a great difference in the way it is cured, and moldy straw should not be used.

FEEDING

The best of the grain goes into the production of flour, which forms the basis of that great American breakfast dish — buckwheat cakes and maple syrup — which so ably starts the day's work on many of the farms. Another considerable part of the yield goes for poultry feed and is found desirable in the winter ration. As a stock feed the whole grain is rated somewhat lower than the leading cereals, but some of the mill by-products rank well up in the list of nitrogenous concentrates. Buckwheat middlings, free from the woody hulls, are a first-class dairy feed with a reputation for milk production. They are high in fertilizer constituents which may be returned to the land. Each hundred pounds of middlings contains 4.3 pounds nitrogen, 2.2 pounds phosphoric acid, 1.2 pounds potash. In digestible nutrients it shows 22 per cent. protein, 33.5 carbohydrates, 5.5 ether extract, with 87.3 pounds dry matter in 100. The whole grain on the other hand shows 7.7 protein, 49.2 carbohydrates, 1.8 ether extract, so that in all cases it pays to sell the whole grain and buy the middlings if unmixed with hulls.

Having so far considered the crop largely from the grain standpoint, I cannot conclude without briefly mentioning some of the many ways in which the enterprising farmer can make use of it.

SOIL IMPROVEMENT

There are thousands of acres of farm lands in this state in such an unsanitary condition that the leguminous crops generally used for rapid soil improvement can not be satisfactorily grown. Most of them are too sour for clover, too cold and too far north for crimson clover and cowpeas, and too high an elevation for soy beans. It is on this character of soils that buckwheat has an important mission to perform. After all the other crops are safely planted there is yet time to fit some of these old fields for buck-

wheat, and the ultimate disposition of the crop may depend on individual conditions. The dairyman, short of summer feed will find it a fine soiling crop when in full bloom. The man who is battling to make taxes and a living will harvest and sell the grain. The man who is looking toward reclamation will turn under the immense growth at its best, preferably disking before plowing to facilitate that operation and conserve his Christianity, and fit for rye and vetch for a winter cover crop to be turned under in the spring. After which, with a good top-dressing of lime and a light dressing of manure or, wanting that, a judicious application of commercial fertilizer, he may seed down with some confidence that clover will grow where it has not grown before in recent years.

Another practice we have found useful, where we could not afford to lose the use of the land for a season, is to sow the first crop of buckwheat as early as we would oats or just as soon as the ground could be fitted in the spring, turn under at full growth and fit for a second crop of grain the same season. If soil improvement alone is desired two crops may be grown and turned under the same season, and sometimes the second one followed with a cover crop of rye. Another combination we have used is oats and Canada field peas for the early crop, buckwheat for mid-summer and rye and vetch for winter cover.

As a weed killer and cleaner of foul fields buckwheat is without a peer, especially when grown in succession or in combination with other crops that keep the ground well occupied and well shaded.

Buckwheat has been used as a nurse crop for seeding down with fair success. The grass plants do not make much of a start until the nurse crop is off on account of its dense shade, but this has served to keep the surface soil moist and loamy, and if a favorable season follows in the late fall a successful seeding will result. If a hot, dry fall follows it will likely prove unsatisfactory.

In ten years prior to the last census New York increased her buckwheat yield 50 per cent. and its value rose 62 per cent. in the same time. Let us work for a 100 per cent. increase by 1920. Many of us might profitably put most of our wheat and oat

acreage in buckwheat. There is room for many to produce a fancy grade of reclaimed seed true to variety at an attractive price.

TABLE SHOWING TOTAL ACREAGE OF BUCKWHEAT AND NUMBER OF BUSHEL
PRODUCED IN NEW YORK STATE BY COUNTIES (U. S. CENSUS, 1910)

	Acres	Bushels		Acres	Bushels
Albany	10,638	197,474	Onondaga	3,551	82,839
Allegany	11,293	170,620	Ontario	1,908	31,368
Broome	7,894	154,982	Orange	940	17,782
Cattaraugus	9,592	209,281	Orleans	632	12,762
Cayuga	14,420	388,598	Oswego	3,808	71,394
Chautauqua	10,652	257,341	Otsego	8,450	188,855
Chemung	12,087	188,079	Putnam	172	3,161
Chenango	3,554	75,922	Queens	4	50
Clinton	5,470	102,833	Rensselaer	3,938	81,974
Columbia	4,456	81,073	Richmond . . . . .	.....	.....
Cortland	4,625	110,793	Rockland	161	2,405
Delaware	7,191	132,284	St. Lawrence . . .	2,774	63,916
Dutchess	2,705	54,504	Saratoga	6,810	130,163
Erie	7,477	169,673	Schenectady	4,392	102,165
Essex	1,645	25,197	Schoharie	12,312	240,770
Franklin	1,384	27,615	Schuyler	10,363	191,063
Fulton	2,451	44,879	Seneca	5,085	117,495
Genesee	1,175	21,796	Steuben	25,867	341,264
Greene	5,068	92,452	Suffolk	125	2,009
Hamilton	144	2,329	Sullivan	5,091	96,033
Herkimer	1,263	26,793	Tioga	13,059	278,328
Jefferson	1,695	32,950	Tompkins	12,737	293,086
Kings . . . . .	.....	.....	Ulster	4,819	93,557
Lewis	579	10,007	Warren	1,966	30,524
Livingston	1,702	29,654	Washington	2,585	52,264
Madison	4,208	111,431	Wayne	3,247	60,524
Monroe	614	11,631	Westchester	204	3,823
Montgomery	5,470	133,434	Wyoming	4,906	108,237
Nassau	49	1,054	Yates	2,737	43,779
New York . . . . .	.....	.....	
Niagara	1,519	31,065	Total	286,276	5,691,745
Oneida	2,613	54,411			

WHEAT

JARED VAN WAGENEN, JR., LAWYERSVILLE, N. Y.

Farmers' Institute Lecturer

Wheat (*Triticum Sativum*) is the most important cereal of the world because it is the chief bread grain of America and Western Europe. Indeed it is said that the people of the Orient and the South will demand wheat as soon as their opportunities and economic condition will permit. It owes its universal popularity to the fact that it makes a loaf which is white in color and which can be leavened — due to the fact that its protein is in the form of gluten. Russia and Scandinavia depend largely upon rye, owing to the poverty of the people and to the greater hardness of rye. In the United States the acreage and the value of corn is much greater than wheat.

Both in general appearance and by the classification of the botanist, wheat is closely related to barley and rye. It is also allied to our dreaded perennial weed, quack grass.

The word "cereal" is used to designate those grasses where the seed is commonly used as food. There are a number of other plants grown in Europe, and to some extent in America, which are very similar to wheat, and by some botanists are regarded merely as sub-varieties. Such are emmer, spelt, eikom, durum, poulard and square head wheat. From time to time certain seedmen have made the most marvelous claims as to the value of spelt. The fact seems to be that it is a sub-species of wheat grown in Southern Europe and probably is inferior for any purpose to our standard American wheats.

HISTORY

The beginnings of the culture of wheat go back into the infancy of the race beyond any written record and (which is far older) beyond any remains of the Swiss Lake Dwellers or other prehistoric peoples. The wild form is no longer recognized and it seems that thousands of years of cultivation and the care of man must have greatly modified it. It is believed, however, that barley probably represents a still older grain. De Candolle believes that

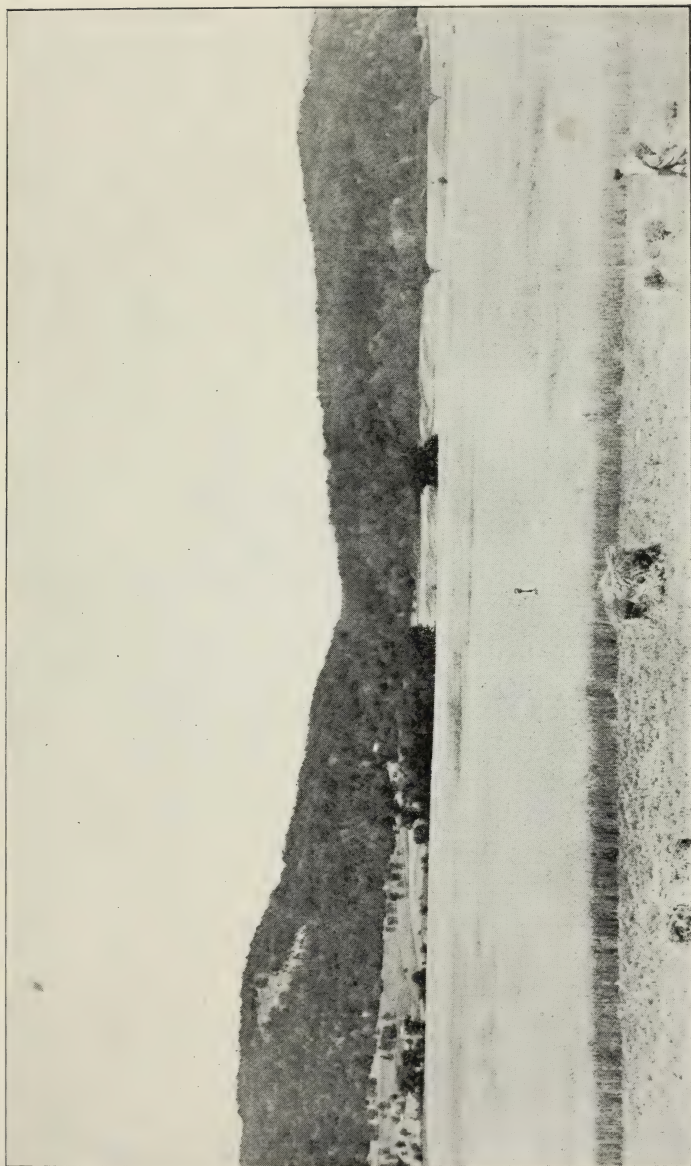


FIG. 282.— FIELD OF WHEAT ON ADIRONDACK STOCK FARMS, GLENS FALLS, N. Y.

its culture began in western Asia and the Euphrates Valley — seemingly the cradle of so many things — but certainly, wherever the white man has scattered himself over the globe he has carried his favorite grain.

DISTRIBUTION

Wheat is grown on all fairly good soils throughout the temperate zone, both North and South. Unlike barley, it is not at home in the tropics. Wheat, especially spring wheat, will grow very far north, but perhaps hardly so far as rye. Roughly speaking, about one-half of the world's crop of wheat — say three billion bushels in all — is grown in Europe, one-quarter in North America and the other quarter is scattered over the rest of the world, including a very considerable amount in Australia. The average production of the United States is about 750,000,000 bushels but at this date (August, 1914) the Government estimate is for a crop of 925,000,000 bushels — the record breaking production of our history. The yield per acre varies greatly throughout the world. England leads with an average production of nearly 32 bushels ranging down to about 26 for Germany, 14 or less for the United States and only 9 for Russia, which is one of the great wheat countries of the world. It is remarkable that those localities which grow wheat most extensively at the same time give the smallest per acre yield, this being the result of extensive rather than intensive methods.

It is said, however, that the large yield of England is the result not only of excellent methods but of an especially favorable natural environment. Statements are made concerning wheat heads as long as 7 inches — something impossible with us.

CULTURE-VARIETIES

Unlike rye, the number of varieties of wheat is exceedingly large. The United States Government once collected about 1,000 varieties which were fairly distinct, and there are as many as 250 varieties well adapted for North America.

In color, wheat may range from a very light yellow, generally known as white, through varying shades of amber to deep red. A further classification may be made according to the presence or

absence of beards. The color of the chaff, or glumes, is a further distinguishing mark. White wheat may be enclosed in red chaff or the reverse. In some varieties the chaff is velvety, in others smooth. Generally speaking, the wheats of the northeastern states are white, plump and soft. This grain is beautiful in appearance, but for milling purposes its value is inferior to the hard, slightly shrunken wheats of the northern Mississippi basin and the plains. The so-called hard wheats carry a larger percentage of gluten and hence make a "stronger" or more tenacious dough and a lighter loaf. In large milling operations the various grades of wheat are scientifically mixed or blended.

By the botanists, spring and winter wheat are not regarded as distinct species, but only as types where selection and environment have modified the habit of the plant. In general, winter wheat is grown in the more southern portions of the wheat belt and where winter conditions are not too severe. Where the conditions for winter wheat are favorable, it is possible to obtain greater yields than with the spring variety.

SOILS

Wheat is a fairly cosmopolitan plant and is grown under a wide variety of soil conditions. Above most plants, however, it insists on good drainage and this may be regarded as an indispensable factor. It does its best work on soils with a rather large percentage of clay rather than sand. On alluvial valley soils, it tends to lodge and rust and the most general type of good wheat lands are rolling, glaciated, naturally drained slopes, especially with southern and eastern exposures. In the northern part of the wheat belt it is especially desirable to have a snow blanket in winter and early spring, this frequently making the difference between an excellent crop and a failure.

FERTILIZERS

Wheat is probably the most exacting of any of our staple farm crops in its fertility requirements, and the ability to produce good crops of wheat is universally considered a sure indication of excellent land. This is not because the gross amount of plant food

required is so large, but because it seems to demand it in a readily available form.

On soils that are at all deficient, some available nitrogen will be found of great value, both in giving the plant growth enough in the fall to withstand the winter and in securing the necessary production of straw. As with all our cereals in New York State, the application of phosphorus is especially indicated. Where farm manure is available, it will give most marked results by applying on the furrow after plowing and harrowing it before seeding. On the better soils it may cause lodging, and, if so, the manure would better be used on the young seeding or the corn, giving the wheat 200 pounds per acre of acid phosphate at seeding.

SEEDING

The size of wheat kernels differs widely in different varieties and seasons. According to Hunt, the average of a large number of determinations was 12,000 kernels per pound. This is equivalent to about 720,000 seeds per bushel. In New York State about two bushels per acre (or less, by the best growers on rich soil), is the standard amount of seed. Under favorable conditions wheat tillers or stools wonderfully and a few men advocate very small amounts of seed, even as little as 40 pounds per acre. In any case it demands a well prepared and well compacted seed bed, and the kernels should be buried as shallow as possible. A depth of only one inch would be ideal, but our drilling machinery will rarely permit such work. If feasible, it may be well to drill the fields across the line of the prevailing winter winds, as the slight furrows left by the drill hoes may encourage the retention of the snow. In New York State, the first ten days or two weeks of September is the most favorable time for seeding.

PLACE IN THE ROTATION

In the special wheat growing districts of the Western States, it is not unusual to follow wheat with wheat for a series of years — an unintelligent and slovenly husbandry which cannot continue indefinitely. In other sections, it is sown in the corn soon after cutting, leaving alleys where the corn shocks stand. In New

York, wheat generally comes in a four-crop rotation of sod, corn, oats and wheat — seeding clover and timothy on the wheat in the early spring.

HARVESTING

Probably there is no crop for which more special machinery has been devised than the wheat crop. American binders have gone to Russia by tens of thousands. On the Pacific coast, the crop is to some extent handled by a gigantic combined reaper and thresher drawn by as many as twenty-eight mules or a big tractor, cutting a swath thirty feet wide and dropping the cleaned sacks of wheat. This may be regarded as the last word in “big business” as applied to the farm. Wholesale methods of both seeding and harvesting are said to be used in the Canadian Northwest as well. The great mass of our crop, however, is grown on farms of moderate size, cut with two or three horses ahead of a binder, threshed either directly from the field or from the mow, and not infrequently stored in the granary for a time. After all, it is the small farmer who feeds the world. Wheat is, relatively speaking, much less important in New York State than of old, yet the state still produces about two-thirds as much wheat as in the palmy days.

MARKETING AND GRADING

It is most remarkable as showing the intense specialization of modern commerce that the Chicago Railroad and Warehouse Commission recognizes no less than thirty-two grades of wheat, there being eight classes, according to color, origin, etc., and then four numbers for each class according to its condition.

To inspect a car of wheat and then assign it to its proper grade is a work calling for training and experience, but it is done constantly at all the big elevator centers.

Up until about 1900, wheat production in the United States increased very rapidly, the increase in acreage between 1890 and 1900 being 56 per cent. This forced a large part of our crop to seek the European market and in some years prices were disastrously low. The increase during the last ten years has been much less marked. We still export large quantities of wheat, but the ratio of the increase of production is probably less than our in-

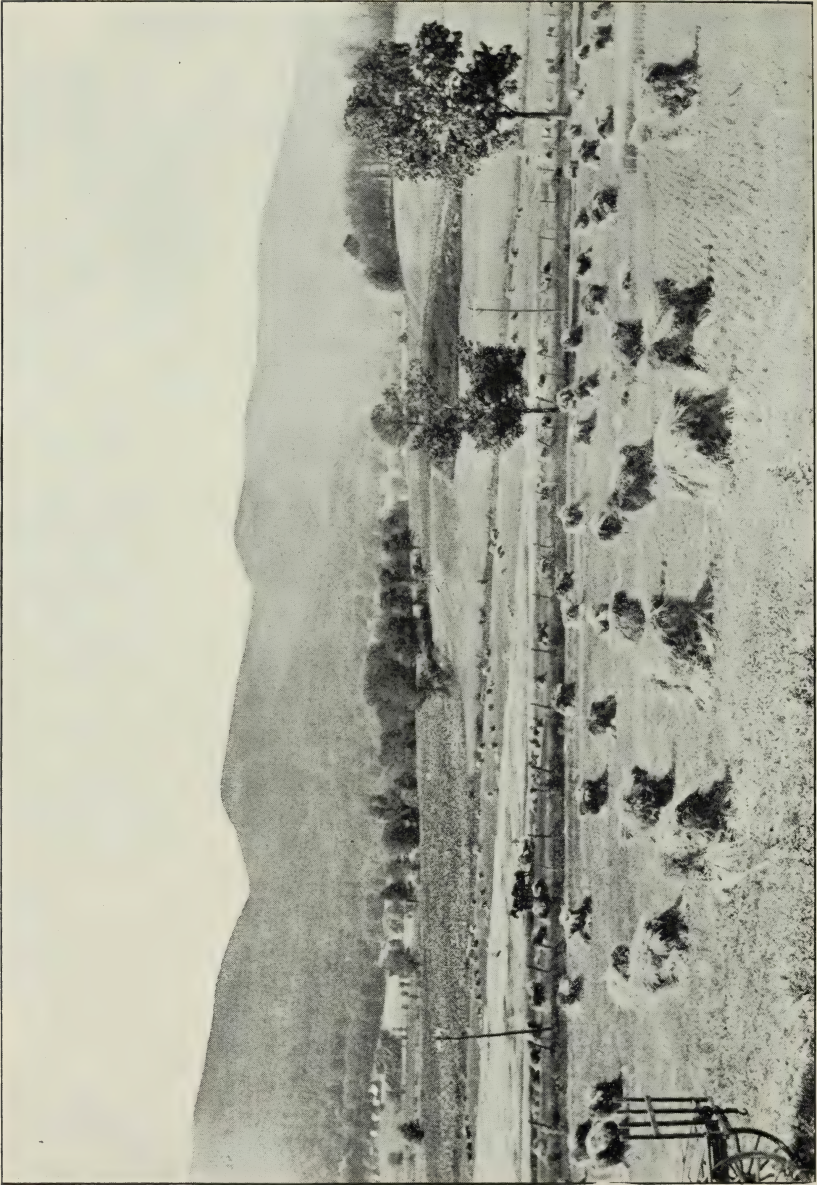


FIG. 283.—WHEAT PROPERLY SHOOKED AND READY TO BE DRAWN, ADIRONDACK STOCK FARMS, GLENS FALLS, N. Y.

crease in population, so that a constantly increasing proportion of our crop will find a home market. It is estimated that in the big mills about 4.77 bushels of wheat are required for a barrel of flour, and that our per capita consumption of flour is about 1.1 barrels annually.

COMPOSITION

Considered merely from its chemical composition, wheat does not differ widely from corn except in the larger percentage of protein and the smaller fat content, the average of many analyses being as below:

	Water	Protein	Nitrogen Free extract	Fat
Wheat	9.07	14.35	70.37	2.74
Dent Corn	10.09	10.05	69.60	5.40

Wheat flour carries decidedly more protein than rye flour and should be considered the more valuable for human nutrition.

USES

Wheat enters into the commerce of the world to a far greater degree than any other grain. Its unique value for human food nearly always makes it unwise to use as animal food, although not infrequently in times of depressed prices farmers in Kansas and other states have fed wheat freely with excellent results.

We grow in our country two and one-half bushels of corn for each bushel of wheat, but most of our corn is fed where grown, only a small proportion of the crop going beyond county lines, while nearly all the wheat crop is shipped to the flouring centers.

The by-products, bran, middlings and red dog flour, making up almost exactly one-third of the wheat, enter into animal feeding in enormous quantities. For every man, woman and child in America there is available one 100-pound sack of wheat refuse and it constitutes by far the most important of any of our by-product feeds. These wheat products stand at the head of the list for safety and desirability, but unfortunately they are generally too expensive as sources of protein on the dairy farm.

INSECTS AND DISEASES

Wheat suffers from a long list of insect and fungous troubles. Most serious of all is the Hessian fly, which is said to have been

imported in wheat straw used as bedding by Hessian soldiers a hundred and forty years ago. This insect prevails both east and west. The remedies include late seeding, burning all stubble and changing the rotation. The chinch bug is more especially a western pest, exceedingly difficult to combat. The losses from these two insects in the United States aggregate each year many millions of dollars. The weevil was formerly very destructive in New York.

There are at least two serious rusts, one the early orange rust of the leaves, and the other the later black rust upon the stems. This disease may destroy the crop in a few days, and it is the especial enemy of spring wheat in northern United States and in northwestern Canada. No satisfactory treatment has been worked out, but there is much to be accomplished by the selection of rust-resisting strains.

TABLE SHOWING TOTAL ACREAGE OF WHEAT AND NUMBER OF BUSHEL PRO-
DUCED IN NEW YORK STATE BY COUNTIES (U. S. CENSUS, 1910)

	Acres	Bushels		Acres	Bushels
Albany	495	10,916	Onondaga	7,556	173,499
Allegany	1,467	28,147	Ontario	21,432	532,138
Broome	211	4,497	Orange	1,281	24,190
Cattaraugus ...	390	8,584	Orleans	20,868	527,634
Cayuga	16,388	364,018	Oswego	330	6,776
Chautauqua ...	918	19,379	Otsego	34	621
Chemung	2,220	47,219	Putnam	17	256
Chenango	35	909	Queens	1	20
Clinton	84	1,513	Rensselaer	53	1,314
Columbia	112	1,942	Richmond	3	50
Cortland	142	1,850	Rockland	91	1,288
Delaware	12	220	St. Lawrence...	550	9,188
Dutchess	1,704	32,920	Saratoga	127	3,466
Erie	18,340	355,870	Schenectady ...	19	466
Essex	52	766	Schoharie	399	9,334
Franklin	595	10,142	Schuyler	4,008	83,906
Fulton	50	962	Seneca	13,495	331,822
Genesee	29,930	708,786	Steuben	8,783	168,160
Greene	235	4,723	Suffolk	3,735	87,812
Hamilton .....	.....	.....	Sullivan	14	247
Herkimer	46	1,220	Tioga	962	20,924
Jefferson	398	5,997	Tompkins	6,223	144,917
Kings .....	.....	.....	Ulster	1,305	24,627
Lewis	24	423	Warren	2	47
Livingston	21,036	520,775	Washington ...	66	1,262
Madison	680	14,466	Wayne	16,470	337,333
Monroe	35,177	866,903	Westchester ...	241	4,579
Montgomery ...	312	7,893	Wyoming	10,309	254,788
Nassau	341	7,702	Yates	12,090	293,255
New York .....	.....	.....	
Niagara	26,717	577,082	Total	289,130	6,664,121
Oneida	555	14,384			

CORN CULTURE IN NEW YORK STATE

H. E. Cook

Dean of New York State School of Agriculture, Canton, St. Lawrence County,
N. Y.

PREFACE



FIG. 284.—EIGHT-
ROWED YELLOW
FLINT CORN.

Corn culture in New York is not well organized, due mainly to formerly cheap corn from the West and to the introduction of the silo. Nearly all of our former well-defined methods were discarded when the silo became an economic necessity.

The methods of our fathers were essentially sound, perhaps, with one exception, namely, manuring in the hill and hilling the corn. These, however, were not serious objections. They were of course adapted only to small areas, but their plan as a whole was better than ours.

Only home-grown seed was planted and no one will become skilled as a corn grower until he grows his seed, for the very plausible and simple reason that the development of the kernel to a fine maturity and large yield must be the ultimate object of corn growing.

Our fathers did that and the man who could not or would not was ridiculed by his neighbors and went out of the corn business. He manured the hills independently because he had not learned a better method of raising soil temperatures. The little hot bed under each hill was a costly way of doing what we do now by increasing the organic matter and then rotting it by much cultivation and twice plowing. He had no other method of fertilizing; we have found more easily applied methods, methods that are adapted to larger areas and high-priced labors, but the principles involved our fathers possessed.

They also gave clean culture, with a hoe to be sure, but it had the desired effect. They grew corn — we grow stalks.

Let me here quote from a circular which I recently published for our northern dairymen.

“If my vision is correct, the farmers of Northern New York need particularly to emphasize at this time, some very old-fashioned things: namely, more ripe corn silage, more clover hay and more oats and barley grain mixed. We have departed from the ways of our fathers who had no thought of going South or West for their seed corn. They raised, to be sure, only a small acreage; one, two, or three acres, but the crop was carefully tended. The land was most thoroughly plowed and fitted and very often it was summer fallowed the year previous to planting. The best manure was saved and the corn manured in the hill.

“In order to insure a good stand the seed had been carefully selected in the fall, nicely braided into ‘traces’ and hung away to dry. Did it grow? Why of course it grew and ripened. We have now learned of better methods of corn culture but we do not all practice them; at any rate the introduction of the silo, valuable as it is, has demoralized corn growing in the north. The old home-grown seed has largely and in many places wholly disappeared. We go to a hardware store or a seed house somewhere and buy our seed. We have lost our knowledge of varieties to a point where the most flagrant imposition is practiced; varieties that are popular and valuable, maybe, somewhere in the country, are exploited by good talkers with the result that we grow corn stalks, if we grow anything, but very little corn. The crop is hard to handle and after we get it housed, the value is uncertain.

“Our only hope lies in the return to the days of our fathers, and the growing only of such varieties as we can ripen on our farms. In nine cases out of ten we shall find ourselves growing the flint corns. Occasionally a farmer with a warm soil and much skill and painstaking care, will successfully grow and mature some of the small early dents, but he will probably not materially increase the total digestible dry matter from an acre. The length of a stalk by no means determines its values; more than one-half of the

value is found in the ear and it is concentrated feed we need and not coarse bulk."

MAIZE

Name.—* "Columbus found *Zea mays* L., cultivated on the Island of Hayti, where it was called mahiz; hence the name maize. Mahiz, or mariso, is said to be an Arawak Indian word of South American origin. The word corn is used in Europe as a generic term for all cereals, and originally the word meant any hard edible seed, grain or kernel. In England an ear of corn means a head or spike of wheat. Naturally, therefore, the colonists, finding maize cultivated abundantly by the Indians, applied the term Indian corn to distinguish it from other corn. In the United States corn is everywhere understood to mean maize and a Pennsylvania court has ruled that the word corn is sufficient description of Indian corn. In Latin America 'Maiz' is the term generally used."



FIG. 285.—CORN ON FARM AT KINDERHOOK, COLUMBIA COUNTY, N. Y.

ROOT GROWTH

The habit of root growth is determined partly by natural laws and partly by a continued practice of thin seeding. The roots grow horizontally very rapidly after germination to the extent of two feet or more and then turn downward, the depth depend-

* Quoted from *Hunt's Cereals in America*, page 130.

ing upon air and moisture. All other things being equal the deep, open subsoils are best suited to the plant. Roots have been found four feet below the surface. This large root growth indicates the power possessed by the corn plant to secure water and food, enabling it to withstand drouth and to make rapid growth.

VARIETIES

Varieties are not well understood or classified in this state. Some effort has been made by Cornell to test varieties and to classify them. The very serious problem of variation in soils, temperature and individual knowledge of the corn plant has made it practically impossible to test out varieties and have any information that could be generally applied.

YIELDS FROM CORN VARIETIES GROWN AT ITHACA

From Cornell Bulletin No. 314, May, 1914.

FLINT VARIETIES	GRAIN (Bushels per acre)			STOVER (Tons per acre)		
	1909	1910	Two year average	1909	1910	Two year average
Hall's Gold Nugget	48.2	22.3	35.3	3.33	1.48	2.40
King Philip	50.0	20.8	35.3	3.33	1.48	2.40
Twelve-rowed White	38.8	17.6	28.2	2.66	.62	1.64
Canada Smut Nose	45.4	13.5	29.5	2.30	.48	1.39
Dutton	35.3	17.8	26.6	2.38	.82	1.60
Twelve-rowed Red	40.0	12.8	26.4	2.12	.40	1.26
Eight-rowed Yellow	39.5	16.0	27.8	2.70	....	.....
Sanford White	37.1	14.1	25.6	2.93	.61	1.77
DENT VARIETIES						
Stony Kill White Cap	44.6	17.4	31.0	3.56	.52	2.04
Shenandoah Special	47.5	12.6	30.1	2.23	.53	1.38
Onondaga White	43.4	17.8	30.6	2.45	.47	1.46
Pony Dent	36.6	22.9	29.8	1.70	.60	1.15
Michigan Dent	41.1	9.0	25.1	1.71	.44	1.08
Pride of the North	32.6	16.1	24.4	1.26	.45	.86
White Pearl . . . . .	....	19.1	.....	....	.90	.....
Yellow Dent . . . . .	....	18.7	.....	....	.81	.....

The two varieties yielding the most grain in this experiment are flint varieties; one of these, Hall's Gold Nugget, produced the best average yield of stover also. A rather late dent variety, Stony Kill White Cap, produced a good yield of stover but did not equal the King Philip flint corn in yield of grain. It is evident that varieties of both flint and dent corn have some adaptability to Ithaca conditions. As a class the flint varieties outyielded the dent varieties by 3 per cent in grain and 26½ per cent in stover in this limited test.

The flint corns yielded 41.7 bushels per acre and the dents yielded 40.9 bushels per acre for the year 1909 and 16.8 bushels per acre for the flints in 1910 and 16.7 bushels per acre for the dents in 1910.

In order to continue experiments, which would be helpful in crystalizing our knowledge around a few varieties having a general adaptability to the state and a special value to localities and to individuals, the State School is now cooperating with the county farm agents of Northern New York in a field study of the following varieties.

FLINTS

Sanford White	Halls Gold Nugget
Angel of Midnight	Longfellow
Dutton	

DENTS

Cornell N. 11	Improved Leaming
U. S. 133	Eureka
Bailey Dent	

SOILS AND THEIR TREATMENT

Corn can be grown upon every type of soil in the state if certain principles are understood and methods followed. Gravelly loam is best; soil temperatures are high and deep root growth is easy. The things lacking in this soil are readily soluble plant food and organic matter which must be supplied.

Sandy loam ranks next. Fertility in this soil must be supplied and weed growth is ever present and must be fought. Hardpan or stiff clay may underlie this type of soil and prevent the desired deep root growth.

Muck soil is not so desirable, but may be used if manure and chemicals are freely applied.

Clay is our most treacherous corn land and will continue to be so until by drainage, increased organic matter, and the use of lime it has been changed to a loam and then it will become a strong competitor for first place.

SOIL PREPARATION

That wise old man, Professor Roberts, never said a wiser thing than "hot plow shares." The plow is the cornerstone of successful crop growing. No apology for being old-fashioned, but New York would mightily improve its lands if every farmer would summer fallow a field each year. There is a way, however, to obtain practically the same results at less cost, namely, to plow and cultivate in the fall and repeat in the spring — double plowing and intense cultivation.

Let me emphasize a fact which does not seem to be generally understood.

A sod or any form of organic matter is of no value to a growing plant and may be a positive damage with light rainfall unless thoroughly decomposed before the crop is planted.

It is important to have this thorough decomposition before planting because it increases the water holding capacity, makes more plant food available, larger root area for the coming plant and a smooth clean surface for the weeder or smoothing harrow.

It is needless to say that different types of soil will require different treatment. A loose, open-textured, sandy soil with a thin sod will not pay back to the grower any very satisfactory return for intense cultivation. Decomposed vegetable matter and quick acting fertilizers are the only hope.

A strong, heavy sod, maybe a quack grass sod, must have repeated cultivation and plowing. Fertilizers alone with cheap cultivation will make for a less instead of a greater crop.

A water-logged soil will not respond to manure, fertilizers or cultivation until drained. A clay soil must, if it is genuine, have all things done to it except adding chemical manures and maybe it can be used profitably after it has been changed to a loam.

TIME AND METHOD OF PLANTING

Corn should be planted as early as possible and make a steady growth. May is the great corn planting month. Better, however late, upon finely prepared soil than early upon indifferently prepared soil.

The two-row check planter is our best machine. Check rowing is not a necessity, but where a field is regular in form and the man is regular also and gets the rows lined both ways, the crop can be more easily cared for by horse power. Nine men out of ten in New York use more seed than the field can ripen. For flint corn the hills should be three and one-half feet each way with four to five kernels in each hill. This means six to eight quarts of seed per acre.

If the seed is drilled the rows should be three and one-half



FIG. 286.—CORN ON GREEN BROTHERS' FARM, GOLDEN'S BRIDGE, WESTCHESTER COUNTY, N. Y.

feet apart and the stalks nine to twelve inches apart. It looks pretty thin when it first comes up, but wait until September if ear growth is wanted.

New York state has a chronic mania for heavy seeding of all cereals. More manure and less seed should be a motto hung over every farm driveway.

FERTILIZING

Tradition becomes often more binding than law. Corn has been grown so long upon the fertile adapted lands of the Mississippi valley without artificial fertilizers that we feel that corn should grow any way. Corn will not grow in New York state without heavy applications of fertilizers. Our soils are cold and seasons short. We must make up these deficiencies. The corn year in the rotation must have applied fertility enough to nearly supply a grain crop to follow, to grow a crop of clover in the succeeding year, and then a timothy crop after the clover—if timothy is a part of the crop rotation. Upon the dairy farm two methods of stable manure application are at hand and both have merit. One is to draw manure direct from the stable to the sod field from fall until spring and use with it, spread broadcast with a grain drill, 500 pounds per acre of the following mixture.

200 lbs. nitrate soda
400 lbs. muriate potash
1400 lbs. acid rock

Another method is to use the manure as a meadow top-dressing, developing a sod so rich and fat that with an application of chemicals it will produce a good crop.

Under no circumstances is it profitable to buy any form of organic nitrogen. The use of slaughter-house nitrogen is an apology for lack of cultivation. The roots and stubble of plants are always present in sufficient amounts to more than offset the use of organic forms even to the amount of one ton per acre. Readily soluble forms only of nitrogen, such as nitrate of soda, should be used if extra nitrogen is required. I should avoid the ordinary ready-mixed fertilizers and buy only nitrate of soda, acid rock and muriate of potash, based upon present knowledge of plant feeding and materials at hand, cost considered.

The formula just mentioned may be slightly altered to suit the greater or lesser need for nitrogen, potash, or phosphoric acid.

All chemical manures should be put in broadcast with a grain drill. Take the fertilizer apparatus off of the corn planter and hang it away as a relic. Plant roots require their food evenly distributed through the soil.

CULTIVATION AFTER PLANTING

The weeder or smoothing harrow to be effective must be started immediately after planting and continued until there is danger to the plants. The two-row cultivator of some standard make should be kept running a reasonable length of time.

CARE OF SEED

Again western methods have been applied and losses resulted.

During the seed harvest and curing they have a less humid atmosphere than in the East. Corn can be picked from the stalk and hung in a crib and be fairly safe for seed. In the East during this same period, we have an exceedingly humid atmosphere.

Seed corn should be first cured by cutting the stalks and shocking in the field. The selection for seed should be made when husking and the ears dried under artificial heat. They should not be allowed to freeze at any time if full vigor is expected.

CLIMATOLOGY

Corn is a tropical plant and its habits must not be ignored. The length of season in New York state is not determined by latitude. There are points in the north St. Lawrence valley that are farther south than the southern tier of counties.

Altitude is a very dominant factor in fixing the frost limits. No one knows these facts and peculiarities occasioned by east or west, north or south exposure as well as the man who lives upon the farm. He forgets, however, when located upon what is considered unfavorable corn lands, that he must, by choosing variety and the adaptation of manures and cultivation, make up for his deficiencies. He cannot do this by securing seed from a more favored locality.

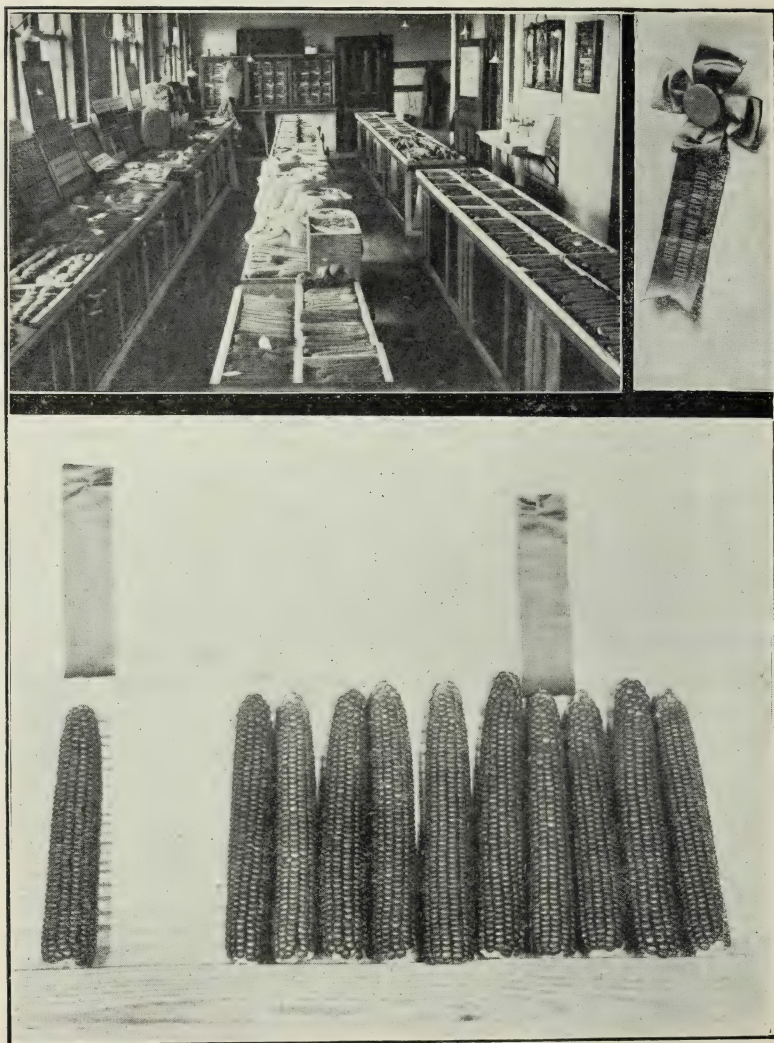


FIG. 287.— SEED CORN SELECTION ROOM AND SELECTED EARS, STATE SCHOOL OF AGRICULTURE, CANTON, N. Y.

COST OF PRODUCTION

The following table represents a four-year study of cost of producing corn for silage, carried on by Mr. J. J. Sheahan, Superintendent of farms at the St. Lawrence State School of Agriculture. (1913 figures not yet published.)

The corn has ripened each year and was produced from a 12-rowed flint, grown upon the school farm.

Our records for two years show not only a larger yield of grain from flints than from dents, but also a heavier tonnage of stover, that is, from dents which will mature in this latitude.

We have abandoned the dents altogether and we believe in most cases in New York state more satisfactory feeding results will follow from flints than from dents.

CORN, 27 ACRES		
Yield 223¾ tons at \$5.....		\$1,118 75
Plowing	\$124 91	
Harrowing	69 35	
Sowing fertilizer	17 82	
Planting	13 23	
Cultivating	88 73	
Hoeing (hand labor).....	3 08	
Cutting	44 91	
Filling silos	214 75	
Fertilizer 13 13/20 tons.....	330 97	
Seed 7¼ bushels.....	10 88	
Twine	4 05	
		922 68
Profit		\$196 07

	ITEMIZED COST PER ACRE			
	1909	1910	1911	1912
Yield per acre, 8¾ tons at \$7.....	\$61 25	.....	.....	.....
Yield per acre, 6.822 tons at \$4.50. ....	.....	\$30 70	.....	.....
Yield per acre, 7¾ tons at \$6.....	.....	.....	\$46 50	.....
Yield per acre, 8.287 tons at \$5....	.....	.....	.....	\$41 43
Plowing and harrowing.....	\$3 49	\$3 49	\$5 28	\$7 19
Sowing fertilizer and planting.....	1 00	1 13	1 23	1 15
Cultivating and hoeing.....	3 60	2 66	3 57	3 41
Cutting	1 85	80	59	1 66
Filling silo	8 32	6 19	4 56	7 95
Twine	30	30	29	15
Fertilizer	12 38	10 68	10 87	12 26
Seed	28	38	37	40
Total cost per acre.....	\$31 22	\$25 63	\$26 76	\$34 17
Profit per acre.....	\$30 03	\$5 07	\$19 32	\$7 26
Amount of fertilizer.....	937½ lbs.	811.7 lbs.	883.3 lbs.	1011 lbs.

MARKET

The silo is our best market and no doubt will continue to be. The glazing period is probably the most satisfactory time for cutting. Methods of handling are fairly well understood.

If the following corn maxims are studied and practiced they will solve corn growing for each individual in the state.

HOME GROWN SEED IS THE KEY TO SUCCESSFUL
CORN GROWING IN THE NORTH COUNTRY.

KNOWLEDGE OF CORN GROWING IS NOT STANDARD-
IZED, HENCE MEN GET DIFFERENT RESULTS ON SIMILAR
SOILS AND UNDER THE SAME CLIMATIC CONDITIONS.

A LINE FENCE MAY DIVIDE FIELDS OF EIGHT-ROWED
EARLY FLINT FROM FOURTEEN-ROWED DENT.

CORN IS A TROPICAL PLANT.

SOIL TEMPERATURE, CLIMATIC CONDITIONS AND FER-
TILITY VARY IN EVERY COUNTY, IN EVERY TOWN AND
ON MOST FARMS.

SUCCESSFUL CORN GROWING MEANS HIGH SOIL TEM-
PERATURE, CLEAN CULTURE, RIPE CORN.

TABLE SHOWING TOTAL ACREAGE OF CORN AND NUMBER OF BUSHEL'S PRODUCED
IN NEW YORK STATE BY COUNTIES (U. S. CENSUS 1910)

	Acres	Bushels		Acres	Bushels
Albany	9,419	264,047	Jefferson	7,365	240,800
Allegany	3,108	94,126	Kings	35	1,682
Broome	2,742	85,215	Lewis	1,370	37,522
Cattaraugus	5,665	175,962	Livingston	8,995	346,213
Cayuga	23,491	850,149	Madison	5,960	212,790
Chautauqua	14,336	500,858	Monroe	19,584	779,032
Chemung	3,955	106,999	Montgomery	10,003	398,357
Chenango	4,065	177,897	Nassau	5,595	336,173
Clinton	4,923	154,628	New York	9	700
Columbia	17,385	410,576	Niagara	19,261	728,478
Cortland	1,852	74,105	Oneida	10,341	402,688
Delaware	1,420	45,785	Onondaga	19,393	707,385
Dutchess	21,508	744,303	Ontario	18,633	593,169
Erie	16,942	588,563	Orange	10,479	451,179
Essex	3,078	96,383	Orleans	8,434	375,583
Franklin	4,413	144,646	Oswego	14,411	491,706
Fulton	3,526	121,209	Otsego	7,695	308,096
Genesee	9,342	388,719	Putnam	2,395	124,328
Greene	6,727	189,104	Queens	741	41,585
Hamilton	102	3,186	Rensselaer	13,265	409,503
Herkimer	3,876	172,573	Richmond	216	8,386

CORN CULTURE IN NEW YORK STATE

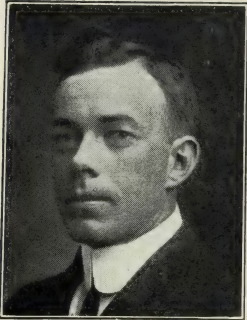
1991

	Acres	Bushels		Acres	Bushels
Rockland	2,242	81,576	Tompkins.....	8,514	278,503
St. Lawrence....	9,761	316,811	Ulster	12,421	433,322
Saratoga	14,568	482,561	Warren	2,205	60,750
Schenectady	3,476	109,694	Washington	18,594	597,342
Schoharie	5,492	197,520	Wayne.....	25,633	911,653
Schuyler	5,031	134,500	Westchester.....	4,049	188,181
Seneca	10,954	334,218	Wyoming	2,752	109,590
Steuben	8,552	228,411	Yates	8,987	234,613
Suffolk	13,989	743,721			
Sullivan	4,632	146,600			
Tioga	4,535	141,680			
			Total	<u>512,442</u>	<u>18,115,634</u>

BEAN GROWING

LOUIS A. TOAN, ROCHESTER, N. Y.

Farm Bureau Manager, Monroe County



There is an old saying that certain farms were "too poor to grow beans," evidently implying that the farm was very infertile, and that beans would grow on almost any soil and under any conditions. No statement could be more untrue. Beans require strong land that is rich in organic matter, sweet and well drained.

The sections where beans are grown are limited to practically three states—Michigan, New York and California—although every state reports some acreage of dry edible beans. These three states produce seven-eighths of the total acreage and nine-tenths of the total production, producing about \$19,700,000 worth of the \$21,771,000 total valuation. Michigan produces about one-half of the crop. In New York State over nine-tenths of the beans are grown in nine counties of Western New York. This may be merely custom, as a section near Kinderhook in Columbia county is just beginning to grow beans and with success. Orleans and Livingston excel Monroe in average and production. Monroe, according to the census in 1909, averaged 15 bushels per acre. Genesee produced nearly 16 bushels per acre and Wyoming about 16 $\frac{2}{3}$ bushels. I doubt if the acreage in Monroe county last year was eight bushels per acre. If we can not produce more than ten bushels per acre average per year with average prices we can not grow beans profitably in this section.

SOILS

Beans will grow on soils, ranging from a clay loam to a gravelly loam. The soil must be sweet, and sometimes lime will be beneficial, even on limestone soils. I know of no field crop which will help to pay for drainage, when it was necessary, more quickly than beans. Beans can not stand "wet feet." Oftentimes, espe-

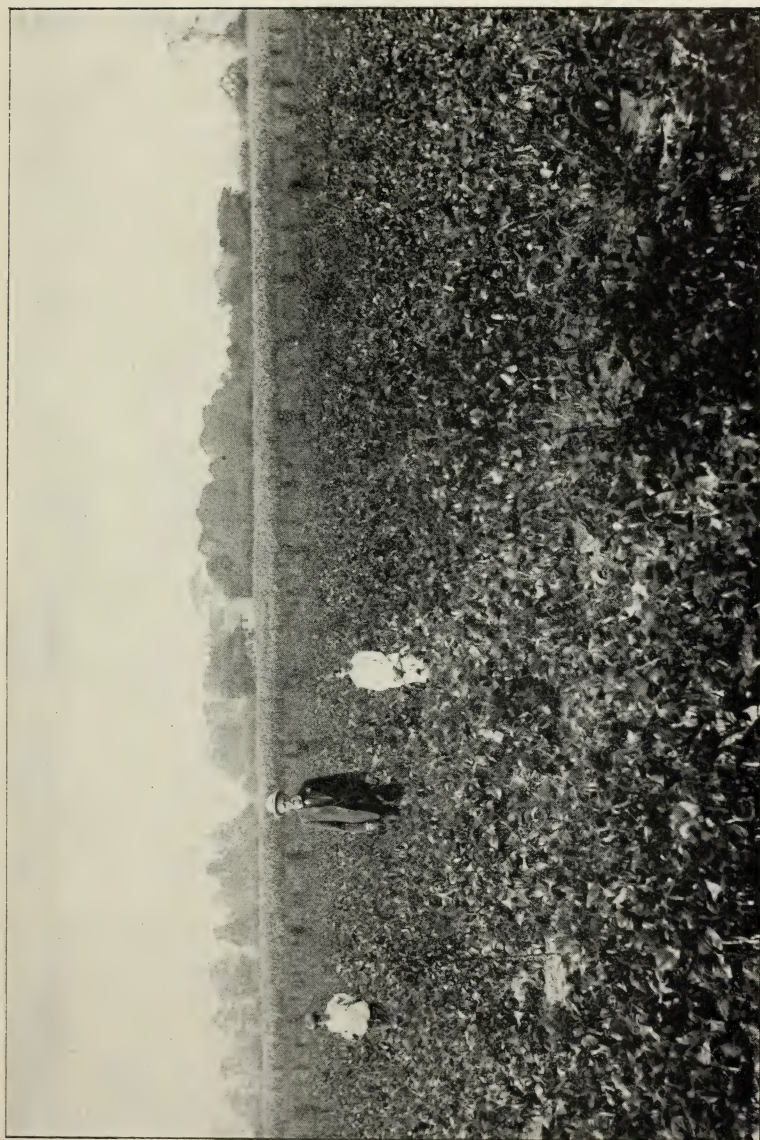


FIG. 288.—FIELD OF BEANS ON FARM OF J. S. HOSFORD, KINDERHOOK, COLUMBIA COUNTY, N. Y.

cially on clay soils, poor drainage or standing water sometime during the growing season, is the determining factor.

It is a pretty safe thing to say that barnyard manure is the best fertilizer. Beans must have a sweet, well-drained soil, rich in humus or organic matter. Commercial fertilizers will not take the place of manure, although there is no question but what a commercial fertilizer is beneficial, especially on soil said to have been "beaned to death." Where the use of commercial fertilizer is found to be profitable I should suggest the use of a quickly available complete fertilizer — quickly available because beans are a ninety to one hundred day crop. Although the bean plant is a legume some quickly available form of nitrogen is necessary when the ground is cool in the spring before the bacteria in the soil become active. Nitrate of soda is the cheapest and available, while the soil is cool. According to some authorities, potash is usually found in soils in this section and phosphoric acid is deficient. Where this is the case, a mixture such as 2-8-4 or 2-10-4 would be beneficial, applying about 200 to 250 pounds per acre. A 2-8-4 mixture calls for 220 pounds nitrate of soda, 1,000 pounds acid phosphate (16 per cent. phosphoric acid), and 160 pounds muriate of potash. In the 2-10-4 mixture 1,250 pounds of acid phosphate is needed.

ROTATION OF CROPS

A good rotation of crops is essential. Under general farm conditions, beans after beans result in decreased yields. I know of sections where beans were once grown profitably but because of decreased yields, the farmers have had to raise some other hoed crops until the land was brought back into condition again. A good three-year rotation consists of wheat, clover and beans — a short rotation with two legumes. The clover sod provides a good green manure, in addition to the barnyard manure, which should be applied on the seeding or sod. Other rotations, often practical, are wheat, clover, beans and other hoed crops; oats, wheat, clover, timothy, hoed crops; oats, wheat, clover, timothy, corn or potatoes, beans. In some sections the oats are seeded. Where a field is left in sod for some time corn or potatoes had better precede beans, as the white grubs or May beetles are sometimes very destructive to a bean crop. They do not get a chance to develop with one

year of sod, as their transformation takes three years. We practice the three-year rotation — wheat, clover, beans — where it is possible. There is a saving of about \$2.50 per acre in labor cost where the bean ground is fitted for wheat instead of plowing after barley or oats for wheat. This item of cost, while not affecting the cost of producing the bean crop, affects the labor income for the farm, and should be considered. The ground is firm for wheat after beans and has to be plowed but once in each rotation.

PLOWING

Ground for beans should be plowed as early in the spring as possible. On soils where it is impossible to get on the ground early in the spring, fall plowing is best, but where this is practiced the plowed ground should be cultivated or disked as early in the spring as possible. This loosens the soil and prevents evaporation. I have seen a difference of over five bushels per acre on two adjoining fields, each plowed in the fall, but one cultivated early, the other after the oats were sown. Other conditions were practically the same.

Ground for beans must be thoroughly fitted and worked down. Where we plow one week and plant the next the surface soil has not united with the soil below, capillary rise of water is checked, and the beans come up slowly and unevenly. It is far easier and cheaper to kill weeds before than after planting. Therefore, I would advise a thorough fitting of the ground before planting. If the ground becomes too mellow precede the drill with the roller.

SEED AND PLANTING

A change of seed every year or two from another locality results in increased yields. I know of no reason for this but we have found it to be true many times. My observation has been that the White or Red Marrows require stronger land than Mediums or peas. Mediums will often do well on land where Marrows have ceased to pay. Red Kidneys pay better than other varieties about one year in ten. They require a strong, fertile soil. I know of one man who was keeping labor accounts with the United States Department of Agriculture, who three or four years ago on twenty-one acres averaged 37 bushels per acre and

secured \$3.10 per bushel of 62 pounds, making a gross return of about \$135, when the value of the pods was included. This is a net of at least \$105 per acre. Do not plant too early. In this section June 10 is about right. When the ground is cold no gain is made by early planting.

Never plant anything but hand-picked seed, as disease is carried over on the spotted beans. Doing this will not eliminate all the disease in the next year's crop but will reduce it a great deal. We use a grain drill in planting our beans, which plants three rows at a time, twenty-eight inches apart. The only objection we find to this method is that when the ground is mellow the beans are liable to be planted too deep. We can remedy this, however, by having the roller precede the drill. Plant the beans as shallow as possible and still have them covered. Oftentimes a poor stand is due to the beans having been planted so deep that when a crust forms after a rain they are a long time coming up, making a poor stand with many skips, or what we call "snake heads." Where the ground is somewhat weedy it might be advisable to cross-check the field so that the cultivation can be made in both directions. We have found a slightly increased yield where the beans have been planted in drills over the cross-checking method, but this is probably counterbalanced by the small labor cost in the latter.

As soon as you can see the rows, begin cultivating. We cultivate each week or every ten days until the beans are in blossom, or the rows are closed up so much that harm would be done. We try to get on the field as soon after a rain as possible in order to break the crust and save moisture. Our method is to straddle the first, third and fifth rows, etc., the first time over with a two-horse cultivator, and the second time over straddle the even numbered rows. This gives us an opportunity to break up the crust over the field much quicker, and there is very little loss where the beans are not cultivated close to the even numbered rows before we are ready to cultivate again. I consider the disc instead of the front teeth best the first time the field is cultivated. This will be at a time when the beans are just coming through. The discs throw the dirt away, break the crust and kill any weeds that are near the center of the row. We draw the discs as close to-

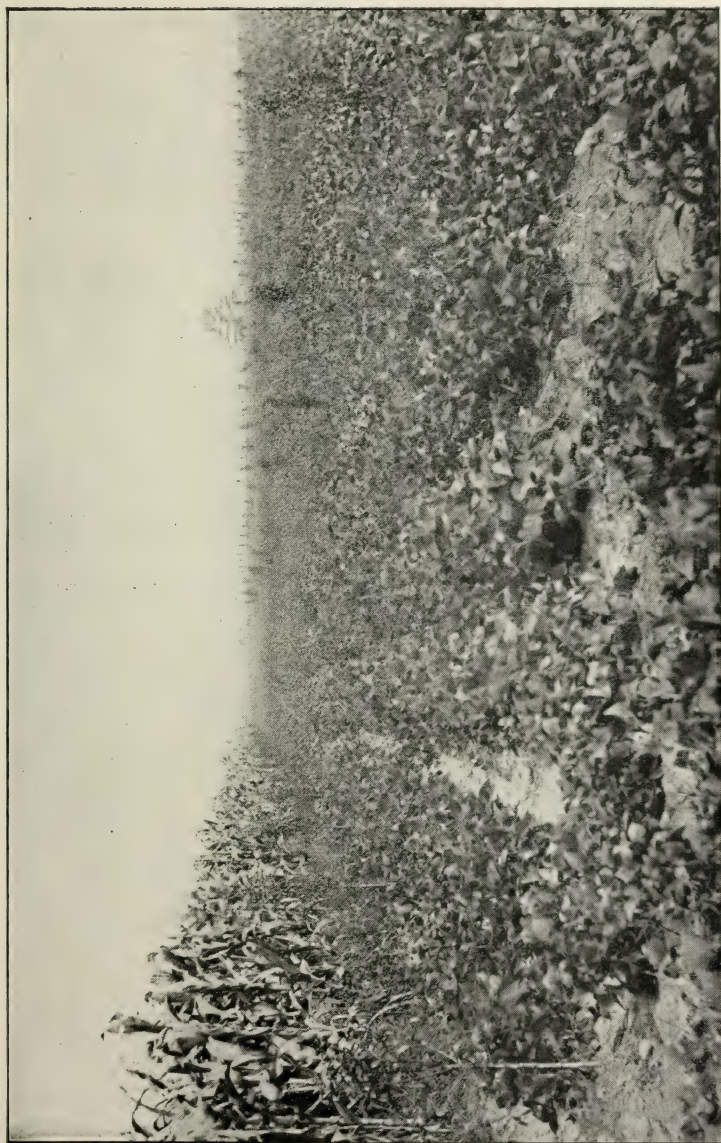


FIG. 289.—BEANS IN YOUNG PEAR ORCHARD ON FARM OF J. S. HOSFORD, KINDERHOOK, N. Y.

gether as possible and steer the cultivator with our feet. The second time over the beans are about two inches high and have thrown out the first two leaves. Cultivate as close as possible and deeply at this time, using peg teeth next to the rows. This will throw the dirt into the center of the row and kill the weeds which are beginning to sprout. We cultivate deeply in order to loosen the ground so that the roots will go down underneath the surface mulch which we are trying to form. Then in a dry time the roots will be receiving moisture which they would not if close to the surface of the ground. Succeeding cultivations must be farther away and more shallow, because the roots are thrown out in all directions and near the surface.

I have seen fields where the yield has been greatly reduced, due to the farmer getting too ambitious and trying to kill weeds by cultivating close to the plants; in so doing he has cut off the feeders underneath the ground. We advise our men that if they are in doubt to carefully pull up a bean plant before they begin cultivating, and in this way they can see how far the rootlets extend out into the row.

Where the field is troubled very much with thistles we alternate a straight tooth with a thistle cutter. No man should cultivate beans all day long with the levers in the same notch. If he will watch the soil he will often have to change two or three times in going across a field to get the best results. Never cultivate or work in the bean field when the vines are wet, either from a rain or dew. Cultivate corn or potatoes when the beans are wet. One will save money to have the men idle, rather than send them into the field. The reason for this is that anthracnose or pod-spot, probably the most serious disease of beans is readily transmitted on the cultivator or by men passing through the field when the vines are wet. The spores stick tightly to the leaves or pods when the vines are dry and would not be injured at that time.

We know of no good practical method of controlling pod-spot. Two years ago this disease did considerable damage. Last year the season was dry and there was practically no loss from this trouble. At Cornell, Professor Barrus has found that if beans are selected from pods which are perfectly

clean, and care is used the succeeding year, the loss will be reduced. I tried this myself one year, selecting the pods from the regular field. The beans grew well and showed no disease until September. At that time the weather conditions were very favorable for pod-spot, and although we used considerable care in selecting a cultivator that was not used in the other fields and kept out of the field when wet, still we had considerable damage. For the last two years we have been growing Canadian White Marrows. These for the first year or two appear to be more disease-resistant and are better yielders than our state Marrows. To illustrate this, one field of five acres yielded 28 bushels to the acre, while the field just across the fence, of twenty-one acres, under the same conditions, produced 21 bushels. We have considerable to learn yet in the control of pod-spot, and while it is known that it can be controlled by seed selection, yet for a farmer growing thirty or more acres that would be impracticable. It has been suggested that he grow a small area, selecting seed each year until he has enough for his own use. The cultivator or the horse in going from one field into another is liable to carry this disease. I should suggest that the seed be hand-picked and great care be used in cultivating, doing so only when the beans are dry.

I doubt if I can give any new information in regard to the harvesting of beans. We all use the bean puller nowadays. In some localities the side-delivery rake is used, and has been found profitable over the former method of hand bunching. We have tried both methods and kept accurate accounts. Where the beans were light the side-delivery rake worked well, using it in the morning when the dew was on, and the beans did not shell. If used later in the day considerable loss was experienced from shelling. Where farmers can obtain help we found but little gain in using the side-delivery rake.

COST OF GROWING

The last point which I wish to discuss is the cost of growing beans. Many farmers who have produced less than eight bushels of beans per acre last year are thinking of producing some other hoed crop to take the place of beans. If a farmer can not grow more than eight bushels per acre under good conditions there is something the matter with his farm, or his land is not adapted to

bean growing. On land valued at \$100 per acre eight bushels will barely pay all expenses, when interest is charged at the rate of 5 per cent.

I have some figures showing the cost per acre of bean production. You will note that I am charging five per cent. interest on the value of property per acre. This should be done so the farmer could get this if he sold the farm and loaned the money. Taxes are considered, since the fields must bear their share of the taxes. Man hours at \$.15; horse hours, \$.10:

Plowing	\$2 60	\$2 85
Fitting ground	2 00	2 50
Planting	30	50
Cultivating	1 75	2 00
Hoeing.....	2 50	3 50
Harvesting and marketing.....	2 75	3 75
Total labor cost.....	<u>\$11 90</u>	<u>\$15 10</u>
Seed	2 00	2 50
Manure, 50 per cent.	4 00	5 00
Equipment	2 00	2 50
Taxes	50	50
Interest	5 00	5 00
Total cost	<u>\$25 40</u>	<u>\$30 60</u>

To partly offset this high cost of production we have the advantage to succeeding crops of a legume in the rotation, a clean cultivated crop, which may be followed by wheat at a saving of \$2.50 or more per acre.

The office of Farm Management at Washington has found the following costs on five New York farms. These are based on actual labor and expense accounts.

	Minimum	Maximum	Average
Labor	\$12 22	\$16 15	\$13 92
Material	5 50	14 28	10 20
Fixed charges	4 98	10 36	8 08
Total, all costs.....	26 74	40 34	32 20
Cost per bushel.....	1 00	2 79	1 75
Net gain or loss per acre.....	11 23 loss	30 45 gain	9 57
Yield (average, bushels).....	.....	.....	18.4
Average price (per bushel).....	.....	.....	\$2 27

To summarize:

Beans require rich, well drained sweet soils.

Ground must be thoroughly worked down and beans planted shallow.

Never cultivate when the leaves are wet.

Cultivate deep and close at first, later more shallow and farther away.

Use only hand-picked beans for seed.

Beans cost from \$25 to \$35 per acre.

TABLE SHOWING TOTAL ACREAGE OF DRY EDIBLE BEANS AND NUMBER OF BUSHELS PRODUCED IN NEW YORK STATE BY COUNTIES (U. S. CENSUS, 1910)

	Acre	Bushels		Acre	Bushels
Albany	34	548	Onondaga	245	3,038
Allegany	392	5,326	Ontario	9,195	113,303
Broome	10	233	Orange	26	191
Cattaraugus	53	1,203	Orleans	19,435	291,191
Cayuga	179	3,493	Oswego	139	1,628
Chautauqua	106	1,885	Otsego	41	1,325
Chemung	137	1,543	Putnam .....	.....	4
Chenango	37	494	Queens	2	40
Clinton	355	4,352	Rensselaer	56	937
Columbia	15	136	Richmond .....	.....	.....
Cortland	41	335	Rockland	20	205
Delaware	21	169	St. Lawrence	134	4,459
Dutchess	6	71	Saratoga	66	1,148
Erie	1,240	17,787	Schenectady	40	906
Essex	80	1,144	Schoharie	106	1,893
Franklin	175	2,447	Schuyler	1,414	15,237
Fulton	14	354	Seneca	2,221	23,589
Genesee	14,700	234,101	Steuben	632	7,128
Greene	18	360	Suffolk	29	196
Hamilton	1	31	Sullivan	8	135
Herkimer	78	870	Tioga	22	439
Jefferson	947	15,632	Tompkins	510	7,345
Kings .....	.....	.....	Ulster	9	122
Lewis	33	540	Warren	51	431
Livingston	18,446	255,244	Washington	198	2,486
Madison	214	2,371	Wayne	4,478	79,424
Monroe	16,044	241,502	Westchester	1	14
Montgomery	103	875	Wyoming	11,655	194,015
Nassau	7	98	Yates	6,042	62,037
New York	9			
Niagara	5,265	73,273	Total	115,698	1,681,506
Oneida	172	2,214			

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STATE OF NEW YORK
DEPARTMENT OF AGRICULTURE

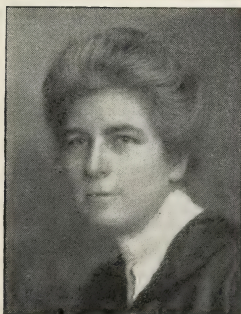
CALVIN J. HUSON, Commissioner

Bulletin 62

(Part II)

The New York State Farm Home
and
Suggestions for the Housewife

Compiled by



Mrs. Ida S. Harrington

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INTRODUCTION

The present bulletin represents the first separate report on womens's work in the Farmers' Institute of the state, and is a proof of quiet but steady progress.

The importance of presenting home topics in the institutes has been recognized from the beginning. Even at that early day when, in 1886, Professor Roberts had called the first Farmers' Institute to promote acquaintance between the College of Agriculture and the farmers of the state, although there was no woman speaker on the program at Ithaca, the State Agricultural Society in the same year appointed a woman — Mrs. E. Taylor of Johnson's Creek — as one of its institute speakers. The science of home-making was, however, thought of for a long time as being solely the business of women. Not until 1908, after two years of holding separate institutes for women, was it definitely recognized that the discussion of home topics belonged in the regular institutes, since "it seemed of nearly equal importance that the men as well the women should hear lectures pertaining to the farm home." This decision did not exclude the holding of separate sessions for women, — a practice constantly growing in usefulness.

Our Director's attitude toward the women's work has lifted it to an equality with that of the men. At the Normal Institute of 1912 (the first under his directorship), he rescued the subject of home-making from the obscure place on the program which it had occupied in previous years, and put it on the evening program of the first day's session. An afternoon conference of women workers was also held. At the Normal Institute of 1913, as will be seen by the program, the conference of women workers covered an entire day, and followed the plan adopted by the agricultural speakers, of standardizing the instruction to be given during the year.

The statistics show that during the past year 126 separate sessions for women were held, in which a total of six thousand women took part. In addition, home topics were discussed in 339 regular sessions and in twenty special meetings. These statistics show a comparatively small part of the work done. The talks and discussions in the institutes have been supplemented in most

places by visits to school and homes, by special work with small groups of women and with individuals, or by correspondence. In places which had previously been visited, an effort was made to use the previous work as a foundation on which to build more advanced teaching. Names were obtained of persons likely to further local study clubs, the introducing of books on domestic science in the local libraries, the procuring of traveling libraries, or community progress in any form. It was noticeable that wherever a group of institutes was held within a small area, a number of men and women made a point of attending the entire series.

All-day sessions were held at the "round-up" meetings at Fulton, Gouverneur, Albion, Newark, Dansville, and Schuylerville. At these sessions emphasis was laid on the social as well as on the practical duties of home-making, with special reference to purifying the homes of the state from unworthy music. The work along this line marks the most notable advance of the year in women's work in the institutes.

I. S. H.

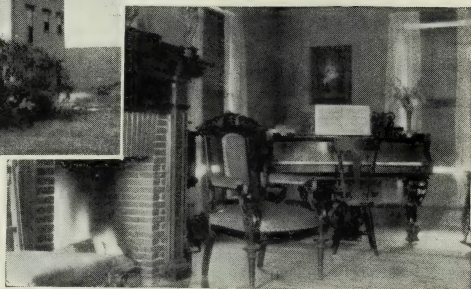
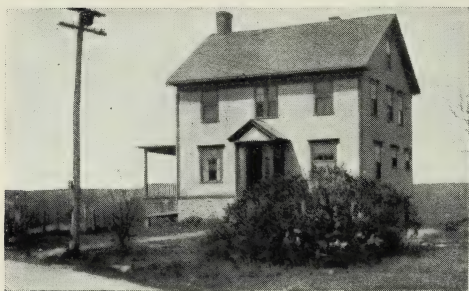
WOMEN INSTITUTE WORKERS

The pages just following are devoted to the ladies who have assisted in the work of the Bureau of Farmers' Institutes the past season. A short sketch of matters of interest concerning each of them with pictures of themselves and their homes will make those whom they endeavor to serve better acquainted with them.

[2015]

MRS. SOPHIE HARGIS BARKER

Mrs. Barker was born in Iowa near Des Moines. She was graduated from the high school in that city and later from the Ohio State College in 1908. She was assistant principal in the Sutherland High School for the following year. The year 1909-10 she was laboratory assistant in chemistry in the chemistry department of the Iowa State College. In 1910 she married Joseph F. Barker, and came to Geneva, N. Y., in 1911, Mr. Barker being in charge of soil investigations at the New York Agricultural Experiment Station there. She is a member of the Presbyterian church in that city and very active in all its work, a teacher in the Sunday school and president of the Young Ladies' Missionary Society. She has also done settlement work among the Italians. Mrs. Barker assisted us at intervals during the past institute season.

MRS. IDA S. HARRINGTON

Mrs. Harrington was born in New York City, June 21, 1868. Her father, Dr. Edward F. Schwedler, came to this country from Germany in 1855.

She was graduated from the Anna C. Brackett School in New York in 1886. In 1889 she married Rev. Frank P. Harrington, then chaplain of De Veaux College, Niagara Falls, and afterwards rector of the Episcopal churches in Hamilton, N. Y., West Pittston, Penna., and Canandaigua, N. Y., successively. In Canandaigua Mr. Harrington's health failed, and Mrs. Harrington went as a student to Simmons College, Boston, Mass., to fit herself for work in home economics.

In 1908 she graduated from the institutional management course at Simmons College and became director of the food sales department (Woman's Exchange) of the Women's Educational and Industrial Union in Boston, remaining there for two years.

In the year 1910-11 she made a special study of cake-making as a home industry, in Somerville, Mass., and in New York. In 1911 she attended the summer school of home economics at the State College of Agriculture in Ithaca, and remained there for the year as extension worker in home economics. Since 1912

she has been regularly employed as lecturer on farm home topics in the institute work of the state.

During the summer vacation of 1909 Mrs. Harrington conducted a tea room at Magnolia, Mass., and during the summer of 1913 she managed the Inn at Letchworth Park, N. Y. Mrs. Harrington has a son and a daughter.

DR. LUCIA E. HEATON



Dr. Heaton was born June 18, 1856, on a farm two and a half miles from Canton, N. Y. Her father was Ira Wilmarth Heaton, and her mother Lucinda Langdon. Both were from New England stock, farmers, and descended from farmers. In 1875 the family moved to Canton, but Dr. Heaton still owns the farm.

Dr. Heaton was educated in the district school, the Canton Union Free High School, and St. Lawrence University, from which she was graduated in 1879 with the degree of B. S. In 1882 she received the degree of M. S. from her Alma Mater. She cared for her invalid mother and orphaned nephew in the interval between leaving college and beginning her medical training. Was graduated from the Medical College of the New York Infirmary for Women and Children in 1892.

She has practiced general medicine in Canton since her graduation to the present time. For the last five years she has done some work each winter as farmers' institute lecturer. In 1912 she was appointed lecturer for the State Department of Health, and has since done considerable work for that department, usually for women's societies and clubs in smaller towns and villages of the state.

Dr. Heaton is a member of the Universalist Church, of the State and County Medical Associations and of the Women's Medical Associations of New York State and Greater New York. She is a member of the Phi Beta Kappa Society, the Kappa Kappa Gamma Fraternity and the local grange. She is a Trustee of St. Lawrence University and was for several years on the board of trustees of the Canton Union School. Dr. Heaton has always been active in the work for temperance, in local health and philanthropic work and in work for the advancement of women's interests.

MRS. DELLA A. JONES



Mrs. Jones was born in Cobleskill, N. Y., May 12, 1866, and was educated in Elmira, N. Y. She made a partial preparation as a medical missionary under private instructors. In 1885 she married Rev. Wm. D. Jones and accompanied him to St. Louis, Mo., where they did missionary work in the slums for several years. Mrs. Jones took a course in dress- and coat-making in order to teach the girls and women in the mission school. She also instructed them in housekeeping. Under private instructors Mrs. Jones has studied physiology, sociology and art.

She is especially interested in the temperance question, and is the author and publisher of many leaflets, pledges, and programs in use in the Sunday schools. For six years she has been temperance superintendent for the Sunday schools of the state, under the appointment of the Women's Christian Temperance Union, and the State Sunday School Association.

Mrs. Jones is a member of two literary clubs, of the Daughters of the American Revolution, The Woman's Relief Corps, and a

state officer in the New York Sunday School Association and the Woman's Christian Temperance Union. Mrs. Jones has been regularly employed as a lecturer on farm home topics in the institute work of the state since 1909.

Mrs. Jones has one son and two daughters.



MRS. MARY T. MONROE

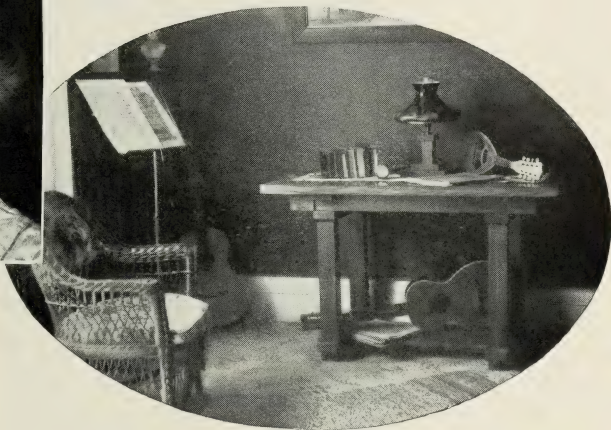
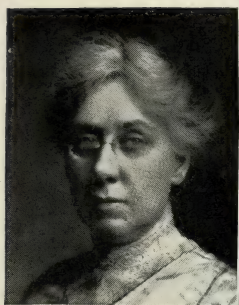


Mrs. Monroe was graduated from the Geneseo New York State Normal School, classical course. She taught two years in the Dryden High School. She has lived in her present home, a farm of sixty acres, for the past twenty-five years. Before the College of Agriculture was founded at Cornell, she assisted Professor W. W. Wing in carrying on poultry experiments. Since then she has regularly lectured to the poultry classes, being there for Farmers' Week also. For three years she was on the poultry institute staff with Professor James E. Rice, conductor. She has twice been to Connecticut state meetings, has done institute work in Pennsylvania and has for several years been employed as lecturer on poultry and on farm home topics in the institute work for this state.

She has bred and exhibited Single-comb Black Minorcas for twenty-five years exclusively, taking high premiums at Boston, New York, Newark, N. J., Atlantic City, Pan-American and St. Louis Expositions. She has also raised ducks and turkeys.

Mrs. Monroe's family consists of two sons and a daughter.

MISS ETTA E. MONTGOMERY



Etta E. Montgomery was born in Silver Creek, N. Y., and received her early education in the schools of that place. She studied vocal music under Professor Henry Durman and Miss Hawley of Buffalo, and mandolin and guitar under Miss Benedict.

In 1912 she attended the summer school at the State College of Agriculture in Ithaca. In 1913, she took special work in home economics at Chautauqua with Mrs. Norton of Chicago.

For six years Miss Montgomery was editor of the Silver Creek News. She has organized, trained and conducted a large chorus choir and two male quartettes, and has taught singing, mandolin and guitar playing.

In 1910 Miss Montgomery reported farmers' institute meetings for the Silver Creek News. She was employed as lecturer on agricultural topics in the work of the institutes during that year, and has since been employed as lecturer on farm home topics.

MRS. ROSE MORGAN



Mrs. Morgan, wife of O. S. Morgan, Professor of Agriculture at Columbia University in the city of New York, is a native of Wisconsin, of pioneer parentage. She received a secondary and academic training in high school and State Normal School. Later she was a student at New England Conservatory, Boston, Mass. After graduating from the conservatory she was for three years supervisor of music in the public schools of La Crosse, Wis., and soloist at the First M. E. Church in that city. During 1900 and 1901 she was a student of singing under Vannuccini, Florence, Italy. After her return from abroad, from 1901 to 1907, she was director of music in Illinois State Normal School at De Kalb. As a student of folk-song she has lived in Ireland and Scotland and traveled extensively among North and South American Indians and negroes. She was married in 1908. In 1910 she traveled in Europe, Palestine and northern Egypt. Since that time she loves to say her first duty has been home-making. As

often as such duties would permit she has lectured on song for women's clubs and New York State Schools of Agriculture, the College of Agriculture and the Department of Agriculture.

During the past year she has assisted at our rural life conferences, normal institute, farmers' days and other large gatherings. Her inspiring presence and interpretation of song has done much to engender higher ideals and an appreciation of that which is of "good report."

MRS. ORRA P. PHELPS

Mrs. Phelps was born on a farm in South Coventry, Conn., August 11, 1867. Her early education was received in the common schools, supplemented by the instruction of the village pastor who fitted her for college. She was graduated from Mt. Holyoke in 1888. After graduation she taught two years in Missouri and one year in Connecticut.

In 1891 she married Charles S. Phelps, then vice-director of the Storrs Experiment Station and professor of agriculture in the Connecticut Agricultural College, and now agricultural expert for St. Lawrence County, New York. While a student at college, Mrs. Phelps joined the Congregational Church and is still an active member of that denomination. She joined the subordinate grange in Missouri in 1889 and has since joined the state and the national grange. A few years ago she was Flora of the Connecticut State Grange and has at various times held the office of lecturer in the subordinate grange. In connection with her grange work in Connecticut she did some institute work.

For six years prior to her removal to Canton, Mrs. Phelps taught botany and nature study in the Taconic School for Girls

which is located in her home town. At present she is engaged in collecting and pressing the flowers of northern New York for the Gray Herbarium at Harvard.

Since November 1913 she has been employed as lecturer on farm home topics in the institute work of the state.

STATISTICS

TABLE SHOWING RECORD OF SPECIAL WOMEN'S SESSIONS, AND REGULAR SESSIONS AND SPECIAL MEETINGS ADDRESSED BY WOMEN INSTITUTE WORKERS
JUNE 15, 1913 TO JUNE 14, 1914, INCLUSIVE

COUNTY AND PLACE OF MEETING	DATE	SPECIAL WOMEN'S SESSIONS		REGULAR SESSIONS MIXED AUDIENCES		SPECIAL MEETINGS	
		No. of sessions	Total attendance	No. of sessions	Total attendance	No. of sessions	Total attendance
ALBANY:		1	35	3	163		
Altamont.....	Dec. 11, 1913	.....	.....	1	53	.....	.....
Coeymans Hollow.....	Dec. 6, 1913	1	35	.....	.....	.....	.....
East Berne.....	Dec. 10, 1913	.....	.....	1	49	.....	.....
Latham.....	Dec. 13, 1913	.....	.....	1	61	.....	.....
ALLEGANY:		2	41	6	558		
Almond.....	Feb. 2, 1914	.....	.....	1	78	.....	.....
Belmont.....	Feb. 13, 14, 1914	1	13	2	181	.....	.....
Black Creek.....	Feb. 6, 7, 1914	1	28	1	106	.....	.....
Hume.....	Feb. 12, 1914	.....	.....	1	55	.....	.....
West Clarks ville.....	Feb. 9, 1914	.....	.....	1	138	.....	.....
BROOME:				5	389		
Binghamton.....	Feb. 19-21, 1914	.....	.....	.....	.....	3	4,800
Chenango Forks.....	Mar. 11, 1914	.....	.....	1	70	.....	.....
Harpursville.....	Mar. 4, 1914	.....	.....	1	47	.....	.....
Vestal.....	Dec. 13, 1913	.....	.....	1	52	.....	.....
Whitneys Point.....	Mar. 12, 1914	.....	.....	1	100	.....	.....
Windsor.....	Mar. 5, 1914	.....	.....	1	120	.....	.....
CATTARAUGUS:		2	48	7	794		
Conewango.....	Jan. 22, 1914	.....	.....	1	70	.....	.....
Gowanda.....	Jan. 19, 1914	.....	.....	1	95	.....	.....
Ischua.....	Feb. 11, 1914	.....	.....	1	112	.....	.....
Machias.....	Feb. 10, 1914	.....	.....	1	95	.....	.....
Napoli.....	Feb. 5, 1914	.....	.....	1	192	.....	.....
Perrysburg.....	Jan. 20, 1914	1	40	1	150	.....	.....
West Valley.....	Jan. 14, 1914	1	8	1	80	.....	.....
CAYUGA:		1	65	8	602		
Conquest.....	Jan. 14, 1914	.....	.....	1	96	.....	.....
Dresserville.....	Jan. 29, 1914	.....	.....	2	92	.....	.....
Fair Haven.....	Jan. 12, 1914	.....	.....	1	25	.....	.....
Locke.....	Jan. 28, 1914	1	65	1	176	.....	.....
Sherwood.....	Jan. 26, 1914	.....	.....	1	102	.....	.....
Victory.....	Jan. 13, 1914	.....	.....	1	41	.....	.....
Weedsport.....	Jan. 15, 1914	.....	.....	1	70	.....	.....
CHAUTAUQUA:		5	303	12	1,134		
Brocton.....	Jan. 30, 1914	.....	.....	1	30	.....	.....
Cherry Creek.....	Jan. 21, 1914	.....	.....	2	103	.....	.....
Clymer.....	Jan. 26, 1914	1	30	1	141	.....	.....
Ellington.....	Jan. 23, 1914	.....	.....	1	90	.....	.....
Findley Lake.....	Jan. 28, 1914	1	120	1	309	.....	.....
Frewsburg.....	Jan. 24, 1914	.....	.....	1	88	.....	.....
Sherman.....	Jan. 27, 1914	.....	.....	1	64	.....	.....
Sinclairville.....	Nov. 20, 1913	1	75	1	80	.....	.....
Stedman.....	Jan. 29, 1914	1	38	1	60	.....	.....
Stockton.....	Nov. 21, 22, 1913	1	40	2	169	.....	.....
CHEMUNG:		1	24	8	599		
Big Flats.....	Feb. 6, 1914	.....	.....	2	175	.....	.....
Erin.....	Feb. 24, 1914	.....	.....	1	98	.....	.....
Hicks.....	Feb. 25, 1914	1	24	1	70	.....	.....
Horseheads.....	Feb. 7, 1914	.....	.....	2	132	.....	.....
Millport.....	Feb. 4, 1914	.....	.....	2	124	.....	.....
CHENANGO:		2	88	4	344		
Coventry.....	Mar. 9, 1914	1	49	.....	.....	.....	.....
Oxford.....	Mar. 6, 7, 1914	1	39	1	25	.....	.....
Smithville Flats.....	Mar. 10, 1914	.....	.....	1	120	.....	.....
Smyrna.....	Dec. 15, 1913	.....	.....	1	82	.....	.....
South New Berlin.....	Dec. 20, 1913	.....	.....	1	117	.....	.....

TABLE SHOWING RECORD OF SPECIAL WOMEN'S SESSIONS, ETC.—*Continued*

COUNTY AND PLACE OF MEETING	DATE		SPECIAL WOMEN'S SESSIONS		REGULAR SESSIONS MIXED AUDIENCES		SPECIAL MEETINGS	
			No. of sessions	Total attendance	No. of sessions	Total attendance	No. of sessions	Total attendance
CLINTON:								
Cherubusco.....	Dec.	18, 1913	5	184	7	741	.....	.....
Ellenburg Center.....	Dec.	17, 1913	1	41	1	133	.....	.....
Mooers.....	Dec.	16, 1913	1	24	1	230	.....	.....
Morrisonville.....	Dec.	8, 1913	1	14	1	50	.....	.....
Saranac.....	Dec.	9, 1913	1	55	1	60	.....	.....
West Chazy.....	Dec.	15, 1913	1	50	1	145	.....	.....
COLUMBIA:								
Ancram.....	June	21, 1913	1	2	7	497	7	775
Chatham.....	Oct.	9, 1913	.....	.....	.....	.....	2	113
Claverack.....	Jan.	13, 1914	.....	.....	1	42	3	162
Copake.....	Feb.	26, 1914	.....	.....	1	98	.....	.....
East Chatham.....	Jan.	5, 1914	.....	.....	1	130	.....	.....
Electric Park.....	Aug.	23, 1913	.....	.....	.....	.....	2	500
Germantown.....	Jan.	15, 1914	1	2	1	19	.....	.....
Livingston.....	Jan.	14, 1914	.....	.....	1	100	.....	.....
Mellenville.....	Jan.	12, 1914	.....	.....	1	55	.....	.....
Spencertown.....	Jan.	6, 1914	.....	.....	1	53	.....	.....
CORTLAND:								
Cincinnatus.....	Feb.	2, 1914	3	310	9	733	.....	.....
Cortland.....	Jan.	30, 31, 1914	1	100	1	181	.....	.....
Freetown Corners.....	Feb.	6, 1914	.....	.....	2	73	.....	.....
Homer.....	Feb.	7, 1914	.....	.....	1	12	.....	.....
Marathon.....	Feb.	5, 1914	1	110	1	71	.....	.....
Preble.....	Feb.	9, 1914	.....	.....	1	106	.....	.....
Texas Valley.....	Feb.	4, 1914	1	100	1	111	.....	.....
Willett.....	Feb.	3, 1914	.....	.....	1	94	.....	.....
DELAWARE:								
Franklin.....	Dec.	23, 1913	1	16	1	90	.....	.....
Sidney Center.....	Mar.	3, 1914	1	16	.....	90	.....	.....
DUTCHESS:								
Clinton Corners.....	Jan.	23, 1914	.....	.....	7	491	.....	.....
Freedom Plains.....	Jan.	26, 1914	.....	.....	1	64	.....	.....
Myers Corners.....	Jan.	22, 1914	.....	.....	1	35	.....	.....
Union Vale.....	Oct.	10, 1913	.....	.....	1	66	.....	.....
Upper Red Hook.....	Jan.	16, 1914	.....	.....	2	150	.....	.....
Wicoppee.....	Jan.	21, 1914	.....	.....	1	119	.....	.....
ERIE:								
Clarence Center.....	Jan.	10, 1914	1	28	12	1,672	.....	.....
East Aurora.....	Jan.	17, 1914	.....	.....	2	525	.....	.....
Hamburg.....	Jan.	12, 1914	1	28	1	60	.....	.....
Iroquois.....	Jan.	24, 1913	.....	.....	1	95	.....	.....
Lancaster.....	Jan.	7, 1914	.....	.....	2	232	.....	.....
Marilla.....	Jan.	7, 1914	.....	.....	1	65	.....	.....
Sardinia.....	Mar.	14, 1914	.....	.....	2	391	.....	.....
South Wales.....	Jan.	16, 1914	.....	.....	1	100	.....	.....
Springville.....	Jan.	15, 1914	.....	.....	1	131	.....	.....
ESSEX:								
Crown Point.....	Jan.	13, 1914	.....	.....	1	73	.....	.....
Jay.....	Dec.	5, 1913	4	181	6	670	.....	.....
Keeseville.....	Dec.	11, 1913	1	35	1	131	.....	.....
Lake Placid.....	Dec.	12, 13, 1913	1	62	1	184	.....	.....
Reber.....	Dec.	10, 1913	1	38	1	76	.....	.....
Ticonderoga.....	Dec.	6, 1913	.....	.....	1	123	.....	.....
FRANKLIN:								
Bombay.....	Dec.	4, 1913	1	46	1	125	.....	.....
Burke.....	Dec.	19, 1913	.....	.....	1	31	.....	.....
Gabriels.....	Jan.	19, 1914	3	100	5	349	.....	.....
Malone.....	Dec.	22, 1913	1	33	1	96	.....	.....
Moirs.....	Dec.	20, 1913	.....	.....	1	48	.....	.....
.....	Dec.	17, 1914	.....	.....	2	142	.....	.....
.....	Dec.	20, 1913	1	34	1	63	.....	.....
.....	Dec.	17, 1914	1	33	.....	.....	.....	.....

TABLE SHOWING RECORD OF SPECIAL WOMEN'S SESSIONS, ETC.—*Continued*

COUNTY AND PLACE OF MEETING	DATE	SPECIAL WOMEN'S SESSIONS		REGULAR SESSIONS MIXED AUDIENCES		SPECIAL MEETINGS	
		No. of sessions	Total attendance	No. of sessions	Total attendance	No. of sessions	Total attendance
GENESEE:							
Alexander.....	Mar. 3, 1914	1	54	10	985		
Batavia.....	Feb. 28, 1914			2	176		
Bethany.....	Mar. 12, 1914			2	260		
Corfu.....	Mar. 2, 1914			1	125		
Elba.....	Feb. 25, 1914			1	76		
Oakfield.....	Feb. 24, 1914			1	74		
Pavilion Center.....	Feb. 24, 1914			2	149		
	Mar. 11, 1914	1	54	1	125		
GREENE:							
Prattsville.....	Dec. 3, 1913	1	65	1	82		
West Coxsackie.....	Feb. 11, 1914	1	65				
HERKIMER:							
Dolgeville.....	Feb. 3, 1914	2	48	4	184		
Jordanville.....	Feb. 24, 1914	1	18	1	26		
Norway.....	Dec. 1, 1913		30				
Ohio.....	Dec. 3, 1913			1	49		
Russia.....	Dec. 3, 1913			1	54		
	Dec. 2, 1913			1	55		
JEFFERSON:							
Adams Center.....	Dec. 15, 1913	3	100	12	1,116		
Belleville.....	Dec. 16, 1913			1	125		
Carthage.....	Dec. 10, 1913			1	126		
Clayton.....	Dec. 10, 1913			1	63		
Clayton.....	Jan. 8, 1914			1	48		
Depauville.....	Jan. 7, 1914	1	35	1	125		
Dexter.....	Jan. 5, 1914	1	50	1	100		
Mannsville.....	Dec. 17, 1913			1	63		
Natural Bridge.....	Dec. 8, 1913	1	15	1	28		
Philadelphia.....	Jan. 9, 1914			1	75		
Plessis.....	Jan. 10, 1914			1	150		
South Rutland.....	Dec. 11, 1913			1	119		
Three Mile Bay.....	Jan. 6, 1914			1	94		
LEWIS:							
Barnes Corners.....	Dec. 12, 13, 1913	2	59	6	985		
Beaver Falls.....	Dec. 5, 6, 1913	1	24	2	135		
Constableville.....	Dec. 4, 1913	1	35	2	450		
West Leyden.....	Dec. 4, 1913			1	180		
	Nov. 22, 1913			1	220		
LIVINGSTON:							
Caledonia.....	Jan. 16, 17, 1914	5	536	7	1,085		
Caledonia.....	Jan. 16, 17, 1914	1	38	1	32		
Conesus.....	Jan. 15, 1914			1	160		
Dansville.....	Mar. 5, 1914	2	408	1	502		
Greigsville.....	Feb. 10, 1914	1	40	1	90		
Linwood.....	Feb. 9, 1914			2	220		
Sparta Center.....	Feb. 11, 1914			1	181		
Springwater.....	Jan. 14, 1914	1	50				
MADISON:							
Canastota.....	Jan. 26, 1914	8	334	10	1,251		
Canastota.....	Jan. 26, 1914	1	33	1	85		
De Ruyter.....	Jan. 29, 1914	1	83	1	190		
Earlville.....	Dec. 22, 1913	1	13	1	56		
Erieville.....	Jan. 27, 1914			2	340		
Fenner.....	Nov. 18, 1913			1	87		
Hamilton.....	Dec. 16, 1913	1	25	1	44		
Madison.....	Dec. 17, 1913	1	20	1	113		
Nelson.....	Nov. 17, 1913	1	85	1	189		
New Woodstock.....	Jan. 28, 1914	1	52	1	147		
Stockbridge.....	Dec. 19, 1913	1	23				
MONROE:							
Brockport.....	Mar. 9, 1914	6	400	8	977		
Brockport.....	Mar. 9, 1914			1	25		
Chili.....	Jan. 23, 1914	1	46	1	120		
Fairport.....	Jan. 20, 1914	1	24	1	153		
Gates Center.....	Jan. 24, 1914	1	35	1	96		
Greece.....	Jan. 22, 1914	1	42	1	140		
Honeoye Falls.....	Feb. 6, 1914			1	65		

TABLE SHOWING RECORD OF SPECIAL WOMEN'S SESSIONS, ETC.—Continued

COUNTY AND PLACE OF MEETING	DATE	SPECIAL WOMEN'S SESSIONS		REGULAR SESSIONS MIXED AUDIENCES		SPECIAL MEETINGS	
		No. of sessions	Total attendance	No. of sessions	Total attendance	No. of sessions	Total attendance
MONROE—Concluded:							
Pittsford.....	Jan. 21, 1914	1	53	1	93	....	.....
Webster.....	Mar. 11, 12, 1914	1	200	1	285	....	.....
MONTGOMERY:		1	28	5	413	....	.....
Canajoharie (Seibers Lane Grange).....	Feb. 27, 1914	....	.....	1	86	....	.....
Charleston Four Corners.....	Feb. 6, 1914	1	28	1	51	....	.....
Freysbush.....	Feb. 4, 1914	....	.....	1	97	....	.....
Minaville.....	Feb. 7, 1914	....	.....	1	105	....	.....
Rural Grove.....	Feb. 5, 1914	....	.....	1	74	....	.....
NASSAU:				1	58	....	.....
Minneapolis.....	Jan. 19, 1914	....	.....	1	58	....	.....
NIAGARA:		3	145	7	1,173	....	.....
Johnson's Creek.....	Feb. 19, 1914	....	.....	1	265	....	.....
Lewiston.....	Jan. 6, 1914	....	.....	1	136	....	.....
Lockport.....	Feb. 2, 1914	1	50	1	53	....	.....
Newfane.....	Feb. 21, 1914	1	50	1	80	....	.....
Pekin.....	Feb. 23, 1914	....	.....	2	514	....	.....
Pendleton Center.....	Jan. 8, 1914	1	45	1	125	....	.....
ONEIDA:		1	45	5	636	....	.....
Ava.....	Nov. 21, 1913	....	.....	1	87	....	.....
Floyd.....	Nov. 19, 1913	....	.....	1	103	....	.....
Knoxboro.....	Dec. 18, 1913	1	45	1	165	....	.....
Verona.....	Feb. 2, 1914	....	.....	1	128	....	.....
Westernville.....	Nov. 20, 1913	....	.....	1	153	....	.....
ONONDAGA:		7	301	9	913	....	.....
Baldwinsville.....	Feb. 20, 1914	1	55	1	120	....	.....
Borodino.....	Feb. 12, 1914	1	40	1	130	....	.....
Cicero.....	Feb. 17, 1914	1	20	1	75	....	.....
Fayetteville.....	Dec. 5, 6, 1913	1	85	1	185	....	.....
Jordan.....	Feb. 21, 1914	1	40	....	.....	....	.....
Mandana.....	Feb. 11, 1914	....	.....	1	53	....	.....
Navarino.....	Feb. 13, 1914	1	41	1	114	....	.....
North Manlius.....	Feb. 16, 1914	....	.....	1	90	....	.....
Onondaga Hill.....	Feb. 14, 1914	1	20	1	35	....	.....
Tully.....	Feb. 10, 1914	....	.....	1	111	....	.....
ONTARIO:		4	174	10	1,076	....	.....
Canandaigua.....	Mar. 9, 1914	1	40	1	40	....	.....
Clifton Springs.....	Jan. 26, 1914	1	54	1	118	....	.....
Hall.....	Jan. 28, 1914	....	.....	1	140	....	.....
Honeoye.....	Feb. 7, 1914	1	38	1	73	....	.....
Naples.....	Mar. 12, 1914	....	.....	2	230	....	.....
Oaks Corners.....	Mar. 7, 1914	....	.....	2	186	....	.....
Seneca Castle.....	Jan. 27, 1914	1	42	1	120	....	.....
Victor.....	Feb. 5, 1914	....	.....	1	169	....	.....
ORANGE:				8	363	....	.....
Bainville.....	Jan. 20, 1914	....	.....	1	78	....	.....
Bullville.....	Feb. 18, 1914	....	.....	1	55	....	.....
Goshen.....	Feb. 21, 1914	....	.....	1	21	....	.....
Monroe.....	Feb. 23, 1914	....	.....	1	21	....	.....
Montgomery.....	Feb. 13, 1914	....	.....	1	31	....	.....
Otisville.....	Feb. 19, 1914	....	.....	1	28	....	.....
Pine Bush.....	Feb. 17, 1914	....	.....	1	36	....	.....
Unionville.....	Feb. 20, 1914	....	.....	1	93	....	.....
ORLEANS:		4	285	4	597	....	.....
Albion.....	Feb. 25, 26, 1914	2	228	1	350	....	.....
Clarendon.....	Mar. 10, 1914	....	.....	1	48	....	.....
East Shelby.....	Feb. 8, 1914	1	42	1	117	....	.....
Medina.....	Feb. 17, 1914	1	15	....	.....	....	.....
Sandy Creek.....	Feb. 16, 1914	....	.....	1	82	....	.....

TABLE SHOWING RECORD OF SPECIAL WOMEN'S SESSIONS, ETC.—*Continued*

COUNTY AND PLACE OF MEETING	DATE	SPECIAL WOMEN'S SESSIONS		REGULAR SESSIONS MIXED AUDIENCES		SPECIAL MEETINGS	
		No. of sessions	Total attendance	No. of sessions	Total attendance	No. of sessions	Total attendance
OSWEGO:		4	144	10	919		
Amboy.....	Dec. 23, 1913	1	75	1	75	.....	.....
Bernhards Bay.....	Feb. 18, 1914	1	30	1	125	.....	.....
Central Square.....	Feb. 19, 1914	1	30	1	110	.....	.....
Fulton.....	Dec. 17, 1913	2	84	1	175	.....	.....
Lacona.....	Dec. 18, 1913	.....	.....	1	30	.....	.....
Orwell.....	Dec. 19, 1913	.....	.....	2	176	.....	.....
Pulaski.....	Dec. 20, 1913	.....	.....	2	163	.....	.....
Williamstown.....	Dec. 22, 1913	.....	.....	1	65	.....	.....
OTSEGO:		2	144	8	810	1	96
Cherry Valley.....	Dec. 15, 1913	.....	.....	1	140	.....	.....
Fly Creek.....	Dec. 18, 1913	.....	.....	1	63	.....	.....
Garrettsville.....	Dec. 19, 1913	.....	.....	1	90	.....	.....
Gilbertsville.....	Dec. 22, 1913	.....	.....	1	80	.....	.....
Middlefield.....	Dec. 16, 1913	1	49	1	80	.....	.....
Pierstown.....	July 18, 1913	.....	.....	.....	.....	1	96
Schenevus.....	Dec. 13, 1913	.....	.....	1	84	.....	.....
Westville.....	Dec. 17, 1913	.....	.....	1	103	.....	.....
Worcester.....	Dec. 12, 1913	1	95	1	170	.....	.....
PUTNAM:				3	276		
Adams Corners.....	Jan. 30, 1914	.....	.....	1	125	.....	.....
Mahopac.....	Jan. 29, 1914	.....	.....	1	62	.....	.....
Patterson.....	Jan. 27, 1914	.....	.....	1	89	.....	.....
RENSSELAER:		4	125	8	778		
Berlin.....	Jan. 8, 1914	.....	.....	1	95	.....	.....
Center Brunswick.....	Dec. 19, 20, 1913	1	18	2	215	.....	.....
Hoosick Falls.....	Jan. 9, 10, 1914	1	36	1	60	.....	.....
Melrose.....	Dec. 11, 1913	1	31	1	120	.....	.....
Raymertown.....	Dec. 12, 1913	1	40	2	219	.....	.....
Stephentown.....	Jan. 7, 1914	.....	.....	1	69	.....	.....
ROCKLAND:		1	33	1	56		
Tallmans.....	Feb. 24, 25, 1914	1	33	1	56	.....	.....
ST. LAWRENCE:		3	251	1	175		
Fine.....	Dec. 9, 1913	1	65	1	175	.....	.....
Gouverneur.....	Dec. 30, 1913	2	186	.....	.....	.....	.....
SARATOGA:		6	252	7	727		
Charlton.....	Feb. 9, 1914	.....	.....	1	132	.....	.....
Clifton Park Center...	Feb. 10, 1914	1	28	1	84	.....	.....
Gansevoort.....	Dec. 8, 1913	1	24	2	65	.....	.....
Greenfield Center.....	Dec. 9, 1913	1	35	1	76	.....	.....
Schuylerville.....	Mar. 18, 1914	2	140	1	285	.....	.....
Wayville.....	Dec. 10, 1913	1	25	1	85	.....	.....
SCHENECTADY:				5	407		
Glenville.....	Dec. 29, 1913	.....	.....	2	171	.....	.....
Mariaville.....	Dec. 31, 1913	.....	.....	2	161	.....	.....
Pattersonville.....	Dec. 30, 1913	.....	.....	1	75	.....	.....
SCHOHARIE:		1	13	9	607	6	1,014
Breakabeen.....	Dec. 1, 1913	.....	.....	1	83	.....	.....
Fultonham.....	Dec. 6, 1913	1	13	1	79	.....	.....
Gallupville.....	Dec. 9, 1913	.....	.....	1	72	.....	.....
Gilboa.....	Dec. 2, 1913	.....	.....	2	134	.....	.....
Jefferson.....	Jan. 20, 1914	.....	.....	.....	.....	2	14
Lawyersville.....	Oct. 7, 8, 1913	.....	.....	.....	.....	4	1,000
Livingstonville.....	Dec. 5, 1913	.....	.....	2	126	.....	.....
Manorkill.....	Dec. 4, 1913	.....	.....	1	83	.....	.....
Middleburg.....	Dec. 8, 1913	.....	.....	1	30	.....	.....
SCHUYLER:		1	40	6	709		
Beaver Dams.....	Feb. 5, 1914	.....	.....	1	140	.....	.....
Burdett.....	Feb. 2, 1914	.....	.....	1	195	.....	.....

TABLE SHOWING RECORD OF SPECIAL WOMEN'S SESSIONS, ETC.—*Continued*

COUNTY AND PLACE OF MEETING	DATE	SPECIAL WOMEN'S SESSIONS		REGULAR SESSIONS MIXED AUDIENCES		SPECIAL MEETINGS	
		No. of sessions	Total attendance	No. of sessions	Total attendance	No. of sessions	Total attendance
SCHUYLER—Concluded:							
Catherine.....	Feb. 3, 1914	....	....	2	186	....	....
Moreland.....	Mar. 6, 1914	....	....	1	98	....	....
Wayne.....	Mar. 7, 1914	1	40	1	90	....	....
SENECA:		1	46	4	301	....	....
Covert.....	Mar. 5, 1914	....	....	1	90	....	....
Romulus.....	Mar. 6, 1914	....	....	2	152	....	....
Seneca Falls.....	Mar. 11, 12, 1914	1	46	1	59	....	....
STEUBEN:		5	197	12	1,162	....	....
Bath.....	Jan. 9, 10, 1914	1	33	1	93	....	....
Campbell.....	Jan. 6, 1914	....	....	1	79	....	....
Canisteo.....	Feb. 20, 1914	1	29	1	43	....	....
Caton.....	Jan. 5, 1914	1	47	1	85	....	....
Cohocton.....	Jan. 12, 1914	....	....	1	40	....	....
Greenwood.....	Feb. 19, 1914	....	....	2	273	....	....
Hedgesville.....	Feb. 23, 1914	....	....	1	64	....	....
Hornby.....	Nov. 18, 1913	....	....	1	148	....	....
North Urbana.....	Jan. 7, 1914	1	43	1	101	....	....
Prattsburg.....	Jan. 8, 1914	....	....	1	153	....	....
Stevens Mills.....	Feb. 17, 18, 1914	1	45	1	83	....	....
SUFFOLK:		3	68	4	415	....	....
Bridgehampton.....	Jan. 13, 14, 1914	1	25	1	57	....	....
East Northport.....	Jan. 12, 1914	....	....	1	138	....	....
Orient.....	Jan. 15, 1914	1	13	1	80	....	....
Southold.....	Jan. 16, 17, 1914	1	30	1	140	....	....
SULLIVAN:		....	....	7	909	....	....
Freemont Center.....	Dec. 11, 1913	....	....	1	74	....	....
Grahamsville.....	Dec. 9, 1913	....	....	1	190	....	....
Hurleyville.....	Dec. 8, 1913	....	....	2	133	....	....
Jeffersonville.....	Dec. 10, 1913	....	....	2	406	....	....
Lake Huntington.....	Dec. 12, 1913	....	....	1	106	....	....
TIOGA:		2	103	5	526	1	100
Apalachin.....	Feb. 27, 1914	....	....	2	330	....	....
Berkshire.....	Nov. 14, 1913	....	....	....	....	1	100
North Barton.....	Feb. 26, 1914	....	....	2	155	....	....
Spencer.....	Mar. 5, 1914	1	80	....	....	....	....
Waverly.....	Mar. 4, 1914	1	23	1	41	....	....
TOMPKINS:		2	49	8	697	....	....
Danby.....	Feb. 2, 1914	....	....	1	92	....	....
Dryden.....	Jan. 31, 1914	....	....	1	76	....	....
Enfield Center.....	Feb. 4, 1914	....	....	1	80	....	....
Speedsville.....	Jan. 30, 1914	....	....	2	145	....	....
Trumbull Corners.....	Feb. 3, 1914	1	18	1	70	....	....
West Groton.....	Jan. 27, 1914	1	31	2	234	....	....
ULSTER:		....	....	4	360	....	....
Clintondale.....	Jan. 19, 1914	....	....	1	154	....	....
Lake Katrine.....	Jan. 17, 1914	....	....	1	62	....	....
Mettacahonts.....	Feb. 12, 1914	....	....	1	78	....	....
Wallkill.....	Feb. 13, 1914	....	....	1	66	....	....
WASHINGTON:		2	49	9	846	....	....
Argyle.....	Dec. 15, 1913	1	23	1	130	....	....
Clemons.....	Dec. 2, 1913	....	....	1	57	....	....
Cambridge.....	Dec. 17, 1913	....	....	1	75	....	....
Easton.....	Dec. 18, 1913	1	26	1	96	....	....
Hartford.....	Dec. 22, 1913	....	....	1	101	....	....
North Granville.....	Dec. 23, 1913	....	....	1	42	....	....
Putnam.....	Dec. 3, 1913	....	....	1	75	....	....
West Hebron.....	Dec. 16, 1913	....	....	1	220	....	....
Whitehall.....	Dec. 1, 1913	....	....	1	50	....	....

TABLE SHOWING RECORD OF SPECIAL WOMEN'S SESSIONS, ETC.—*Continued*

COUNTY AND PLACE OF MEETING	DATE	SPECIAL WOMEN'S SESSIONS		REGULAR SESSIONS MIXED AUDIENCES		SPECIAL MEETINGS	
		No. of sessions	Total attendance	No. of sessions	Total attendance	No. of sessions	Total attendance
WAYNE:		3	170	2	227	1	75
Lincoln.....	Feb. 21, 1914	.....	.....	.....	.....	1	75
Newark.....	Feb. 26, 27, 1914	2	118	1	150	.....	.....
Walworth.....	Jan. 24, 1914	1	52	1	77	.....	.....
WYOMING:		3	193	6	1,000	.....	.....
Attica.....	Mar. 4, 1914	.....	.....	1	134	.....	.....
Bliss.....	Mar. 6, 1914	.....	.....	1	160	.....	.....
Cowlesville.....	Jan. 5, 1914	1	60	1	180	.....	.....
Perry Center.....	Mar. 7, 1914	1	28	1	135	.....	.....
Silver Springs.....	Mar. 9, 1914	.....	.....	1	165	.....	.....
Wyoming.....	Mar. 10, 1914	1	105	1	226	.....	.....
YATES:		3	127	6	767	1	140
Bellona.....	Jan. 29, 1914	.....	.....	1	120	.....	.....
Dundee.....	Mar. 14, 1914	.....	.....	.....	.....	1	140
Lakemont.....	Mar. 9, 1914	1	27	1	59	.....	.....
Middlesex.....	Mar. 11, 1914	1	68	1	150	.....	.....
Penn Yan.....	Jan. 30, 31, 1914	1	32	1	88	.....	.....
Rushville.....	Mar. 10, 1914	.....	.....	2	350	.....	.....
Totals.....	.....	126	6,003	339	34,394	20	7,000

RECAPITULATION

	Number	Total attendance
Special Women's Sessions.....	126	6,003
Regular Sessions Mixed Audiences.....	339	34,394
Special Meetings	20	7,000
Totals	485	47,397

LIST OF WOMEN LECTURERS ON THE FARMERS' INSTITUTE FORCE

REGULAR LECTURERS

Barker, Mrs. Sophie H., Geneva, N. Y.
Harrington, Mrs. Ida S., Rochester, N. Y.
Heaton, Dr. Lucia E., Canton, N. Y.
Jones, Mrs. Della A., Worcester, N. Y.
Montgomery, Miss Etta E., Silver Creek, N. Y.
Monroe, Mrs. Mary T., Dryden, N. Y.
Phelps, Mrs. Orra P., Canton, N. Y.

SPECIAL LECTURERS

Jones, Miss Jennie C., Paris, N. Y.
Mills, Miss Katherine, Garrattsville, N. Y.
Morgan, Mrs. Rose, New York City.

WOMEN'S WORK AT NORMAL INSTITUTE

PROGRAM OF WOMEN'S CONFERENCE AT NORMAL INSTITUTE,
NOVEMBER 25-27, 1913

TUESDAY

In Charge of Mrs. Harrington

- 10:00 A. M. Opening.....Director van Alstyne
10:10 A. M. Extension Work in Home Economics
Prof. Van Rensselaer
10:30 A. M. Round Table.....Led by Prof. Van Rensselaer
11:00 A. M. Sanitary Improvements Without Money Outlay
Miss Knowlton
11:20 A. M. Discussion
11:30 A. M. Household Accounts Made Easy....Miss Fleming
11:50 A. M. Discussion
12:00 M. Recess

Please prepare questions for the afternoon Question Box during noon recess.

- 1:30 P. M. The Family Dietary.....Prof. Rose
1:50 P. M. Question Box. Questions answered by members of the Home Economics Department Staff and Others.
2:30 P. M. Clothing for the Farm Family....Miss Titsworth
2:50 P. M. Discussion
3:00 P. M. Music and Song.....Mrs. Morgan
4:00 P. M. Conference on Home Decoration, conducted by Mrs. Young and Miss Warner, in Fourth Floor Laboratory.

FACTS BROUGHT OUT IN WOMEN'S CONFERENCE

MRS. IDA S. HARRINGTON

Dean Stocking spoke, in his opening address, of how vague a term "teacher of agriculture" would be in these days of specialization. To speak of a "teacher of home economics" is equally vague. A woman institute lecturer is, however, expected to cover the whole field of home economics. This makes her work much more difficult than the specialized work of the men lectures. Furthermore, the communities that ask for women speakers are very vague about what they want. It may be that they have no special thought beyond a desire for variety, like the man who said: "To bring out a crowd it needs a woman speaker or a spraying machine!" Yet men like this one are the very ones whom we want to convince that the message which home economics speakers bring can make their community a better place in which to live. Our *message*, not we ourselves, for while the idea of service must be uppermost in our own minds, we must not convey the idea that we have come to "uplift" a community. Only by gaining the viewpoint of our audience and becoming, for the time being, one of themselves, can we do the work as it should be done.

As individuals our resources would soon be at an end, but with such aids as Cornell behind us, we have nothing to fear. Cornell offers us the chance to promote our primary students of the institute into their more advanced work of the extension schools. It offers us the help of the Reading Course for the Farm Home. Cornell is making an especial study this year of the needs of the girl in the farm home, with reference to occupations by which she may earn money.

Interesting rural communities in rural progress depends much on their being in a state of health to be keenly alive to new ideas. Their state of health depends, on the other hand, on the interest they take in the message which home economics teaching brings them along the lines of sanitation.

The death rate in the cities is being reduced; in the country it

is not. This is due to a lack of understanding in rural districts of personal hygiene, that is, of the importance of fresh air and a proper dietary. Ventilation means a moderate temperature and a change of air. Overheated rooms seem stuffy because there is not a normal amount of moisture in such rooms. Letting in outdoor air, with its greater amount of humidity, corrects this defect. It is not enough to leave windows slightly open. Several times a day the house should be thoroughly *flushed* with fresh air. Since we spend one-third of our lives in our sleeping rooms, it is most important that flushing with fresh air should not be neglected in them. The prevalence of influenza in the country is the direct result of lack of air.

Unfavorable conditions come from underheating as well as from overheating. Can we remedy this without undue expense? The initial cost of installing a furnace is no more than the cost of two or three coal stoves, and the cost of running a furnace is less than the cost of two coal stoves. Drums are better than registers for heating upstairs rooms if there is no furnace, for registers carry foul air up from the lower rooms.

Much sickness among country women is directly due to cold out-houses. This is another strong argument for putting water into country homes.

Sanitation in the care of food must be emphasized, with special reference to milk. A brush is far more sanitary than a dish-cloth for washing milk utensils. The use of *boiling* water, in addition to the usual methods of cleansing, is imperative in the care of the separator.

Protection of the water supply is an essential in bettering conditions. Flies must be excluded and so far as possible exterminated. Mosquito netting, or even wire screening for windows, does not cost much as compared with the disease which may be prevented by its use. Fly traps may be attached to window screens which face the stable. This device was invented by Professor Hodge of Worcester. A similar device, for use in country stores, consists of what looks like a two-story dolls' house. In the floor of the upper story, two fly traps are adjusted, opening into the lower story where the bait attracts the flies, which then

crawl up into the traps. A screened door in the upper part admits of removing the traps for emptying and cleaning.

Much depends on keeping houses dusted in sanitary fashion. Dustless dusters retail at 25 cents each, but may be made at home for a nominal sum by treating cheesecloth with kerosene or with paraffine oil.

The cause of sanitation may be helped by disseminating a knowledge of the real cost of patent medicines, as compared with their selling price.

The help of the schools may be enlisted in furthering sanitation by interesting teachers in the available literature on the subject, and children in contests along these lines.

Teaching on sanitation must not overlook the important factor of proper rest and relaxation.

Getting our money's worth of health depends much on freedom from worry about money matters. To this end we must keep accounts, a thing which too many people seems so difficult, but which may be made so easy. What do we want to show by our accounts? Where we have spent money foolishly, in order that we may avoid similar pitfalls; how prices compare with previous years; what proportion of our income is going for this or that class of expenses. For the busy housewife, the subdivisions in the account book should be as few, and the whole system as simple, as possible. The equipment necessary for the keeping of accounts are: a file for delivery slips, so that they may be used to check up monthly bills; a letter file for paid bills; a pad, with a pencil attached, in the kitchen; a desk, or a table with a drawer; an account book.

Under the item of food, it would be desirable to make separate record of meat, vegetables, groceries, dairy products. If the farm garden supplies the vegetables, the farmer should sell the product to the house. If the garden is cared for by the wife, her labor must be paid for, since not many women would care to credit the digging of a half bushel of potatoes to "recreation."

Not only is it important to keep track of our money income and outgo, but of our income and outgo of physical strength as well. One of the greatest factors in disease is a poorly planned dietary.

The diet may at times be held responsible when the real cause of malnutrition lies in lack of fresh air, or in lack of sufficient water, externally and internally applied. A poor inheritance may be a factor in malnutrition. Poor feeding in childhood results in poor adult health. The intestinal tract is very delicate. The use of whole milk, for instance, in infant feeding before the child's digestive powers are ready for it, may result in abrasion of the digestive tract and a lessened power of digestion; with an especial difficulty in digesting milk, if the original abrasion was due to that.

The right foods for the growing child are those which yield energy (carbohydrates), combined with sufficient tissue-building foods (proteins) and such other building materials as iron, lime, and phosphorus. There must further be a balancing of acid-forming foods, such as meats, cereals, legumes, and eggs, with base-forming foods, such as fruits, vegetables and milk. If acid-forming foods predominate there will be an accumulation of waste in tissues and intestines. This condition may again be due to lack of water. Proper stimulants and digestants for the growing child are fruits and vegetables. Such stimulants as coffee and tea should be omitted from the child's dietary. The diet must be governed by individuality, but we must distinguish between a real inability to take certain foods, and mere notionalism. Fat is hard for children to digest. A diet rich in fat has a tendency to produce acidosis. Such a diet needs the antidote of liberal amounts of fruit. Adapt the food to the occupation. Do not give the same diet to the lumberman, the steamstress, and the baby. Do not serve a heavy meal on Sundays if less exercise is taken than on any other day.

To some extent institute workers may demonstrate a sensible diet. At least we can avoid eating what we condemn, as well as what would make us drowsy listeners and dull speakers.

It is also within our power to demonstrate suitability in our dress. As is true of the diet, dress must also be adapted to the occupation. Providing clothing for the farm family is often rendered difficult because the local store, from lack of encouragement, carries so little variety. But whether buying from the local dealer or a mail-order house, a woman must have a knowledge of

textiles, if she is to buy wisely; she must know how they ought to look and what they ought to cost, and use her influence toward bringing about a pure textile law.

The reason for adulteration of textiles is that the consumers' demands must be supplied at such prices as they are willing to pay. If every woolen suit were made entirely of new wool, there would be only one new suit available all around, each year. So old goods are used over and over. This is legitimate if the shoddy is so well woven in that it is thoroughly incorporated, but not beyond that.

A large per cent. of cotton is interwoven in various ways. Many \$2 and \$3 "woolen" shirts are practically all cotton, and are not an economical purchase. Much of our table "linen" is cotton, with a design of linen scrapings worked in. Silks are weighted with metal salts. Mercerized cotton (properly, cotton immersed in sodium hydroxide) is imitated by giving the mercerized effect through heat and pressure.

A laboratory test for wool is to baste pieces of woolen material on squares of cotton material, and immerse in hot weak caustic soda solution. Animal fibers dissolve in this solution. Home tests may be applied by burning. There is no mistaking the odor of burning wool as compared with burning cotton. Wool leaves a black ash, cotton a white one. In burning weighted silk, the residue resembles a Welsbach gas mantle in texture. Another test is to take the warp thread, pull it out and bite it. If it pulls out and the ends are curly and uneven, it is probably wool. Cotton snaps and breaks off even. To test linen, moisten the piece with olive oil or cotton seed oil. The cotton part will be opaque and the linen part translucent.

Having considered the sanitary surroundings of the family, their diet, and their clothes, we are ready to discuss the problem of simplifying and beautifying daily life through home decoration. If our surroundings fit into the purpose of daily life, the result is art. The simplifying process must be both mental and physical. This is the first step in progress. We must eliminate waste of material, waste of energy, waste of method. By convenient arrangement we must simplify our place of work and by mental planning we must enable the brain to save the heels.

The heart of the household is the kitchen. It is the core of the problem. We shall gain a sense of uplift by having the right outfit, arrangement, and appearance of surroundings and person. Power of environment is strong. If the kitchen is ship-shape and attractive, its influence will radiate like a white light through the rest of the house. We used to begin home decoration at the front of the house. Now we begin at the back, knowing that if that is made right, we shall reach the front in time. However hopeless the task may seem, no situation is impossible.

Have nothing in your homes which common sense cannot justify. Ask these questions: Is this useful? Is it appropriate? Is it durable? Is it beautiful?

Art in the home does not mean bringing more things into the home, but usually taking something out.

Decoration does not mean making things "fancy." It means achieving simplicity, harmony, honesty, permanency.

If this is what we are to stand for in home decoration, what are we to stand for in music? Here too we must fight for that which is permanent. Let us help to censor the American popular song and free the rural homes of the poison of poor music, by being unafraid to plead for the folk song and every song that lifts lives to a higher plane.



FIG. 290.—AN INSTITUTE AUDIENCE.

ADDRESSES AT INSTITUTES

[2045]



THE HOME ACRE

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Farmers' Institute Lecturer

Every citizen worthy of the name contributes something to the common good. Woman's greatest contribution is the home, to which she has devoted her energies unceasingly.

By reason of her physiological function as the mother of the race, woman is more dependent on the home than man. It is her shelter, her safe retreat in emergencies, and her workshop. Since the family is a unit, and for its best development must remain so, the home is permanent and provides not only for the needs of the mother and children, but of the father and bread winner as well.

It must furnish to all the members of the family food, clothing, safety from danger, opportunity for growth and education, and at least such a measure of happiness as may be necessary for successful living.

The arousing of public interest in the problems of health offers a new opportunity to women. The health of the community is

gauged by the health of the individuals composing the community, and the health of individuals is largely dependent upon home conditions.

WOMAN'S OPPORTUNITY TO PROTECT FAMILY HEALTH

The mother can safeguard the lives of her family by an intelligent application of the laws of personal hygiene and home sanitation. She can guard her family from those great scourges of mankind, the preventable diseases; she can secure for them a greater measure of health and a longer span of life.

LIFE SPAN VARIES

Vital statistics of different countries and at different periods show an amazing difference in length of life.

Men live twice as long in Europe as in India, and twice as long today as they did three or four hundred years ago.

The death rate of Dublin is about twice that of Amsterdam, and three times that of rural Michigan.

The following table indicates the comparative death rates of ten countries at the beginning of the present century:

* Countries 1900-1902	Death rate per 1,000	* Countries 1900-1902	Death rate per 1,000
Spain	26.53	Ireland	16.59
Italy	20.23	Denmark	13.63
Scotland	17.61	New South Wales.....	13.10
France	17.50	Victoria	13.08
England and Wales.....	17.16	New Zealand.....	10.80

The S. C. A. A. News for February-March, 1914, published the comparative death rates of all states in the Union which compile trustworthy vital statistics.

State	Death rate per 1,000	State	Death rate per 1,000
Maryland	16.3	Ohio	13.1
New York.....	15.2	Montana	13.0
Massachusetts	14.7	Indiana	12.6
New Jersey.....	14.7	Vermont	12.6
Connecticut	14.4	Missouri	12.4
New Hampshire.....	14.1	Colorado	11.9
California	13.4	Utah	11.6
Kentucky	13.4	Wisconsin	10.9
Michigan	13.1	Minnesota	10.7

* *Preventive Medicine and Hygiene.* Rosineau.

The position of our own state almost at the head of this list has aroused great interest in problems of public health.

Among the causes contributing to these varying death rates are density of population, proportion of cities to open country, poverty or wealth of the people and their occupations, the comparative ages of the inhabitants and their general intelligence.

HOW CAN LIVES BE SAVED ?

Only a careful and extended study of statistics can enable one to arrive at a right conclusion as to how these heavier death rates might have been reduced. In other words, it is difficult to distinguish preventable mortality from that which is a necessary result of human life and human activities. But there are probably few fatalities of any nature or at any time in which there are not contributing causes which might have been prevented.

The greatest advances leading to the prolongation of human life are easily determined. World-wide movements for the promotion of peace; enlarging knowledge of the causes of communicable diseases and methods by which they may be prevented; the lessened consumption of alcoholic beverages; greater care in the prevention of accidents in industry and travel; the general progress of education leading to the adoption of sanitary measures by communities and improved personal hygiene by individuals; all these have contributed their share in lengthening the average span of human life.

The introduction of vaccination is estimated to have increased the average length of human life by three and one-half years. Unfortunately there are almost as startling examples of failure to make the most of favorable conditions.

Col. Gorgas in the Panama Zone has demonstrated that "public health is purchasable" and that "within natural limitations a community can determine its own death rate."

CONDITIONS IN RURAL NEW YORK

Rural New York offers an opportunity for improvement quite as convincing as that of the Canal Zone, and upon an immensely greater scale. Dr. Biggs, State Commissioner of Health, says that "the rural districts have failed to realize the great import-

ance of improved sanitation" and that "the rural death rate from general diseases, typhoid fever, malaria, diarrhoea and enteritis is greatly in excess of that in the urban districts." "The number of deaths under one year of age per one hundred deaths at all ages increased from twelve to thirteen in the rural districts, while it dropped from twenty to eighteen in the urban districts." (1913.)

The State Charities Aid Association has published a chart which makes the situation plain.

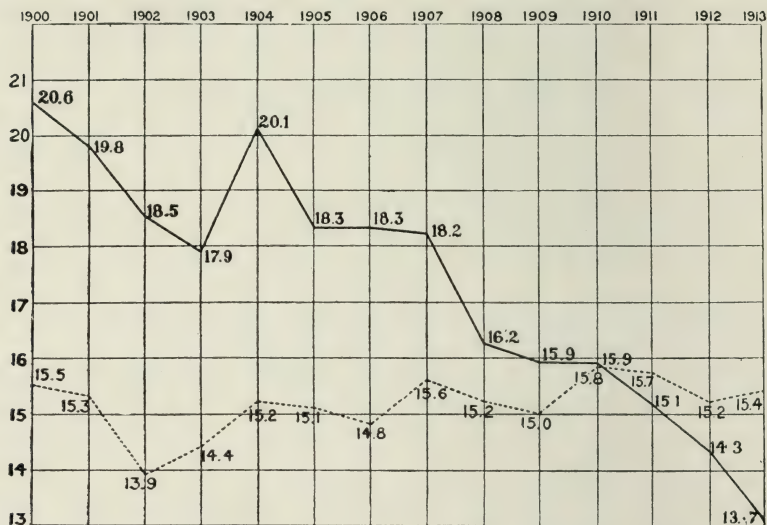


FIG. 291.—DEATH RATE IN NEW YORK CITY COMPARED WITH DEATH RATE IN RURAL NEW YORK.

Heavy black line shows decline in death rate in New York City. Dotted line shows recent increase in death rate of rural New York (villages below 8,000 pop. classed as rural). Note that New York City loses fewer lives in proportion to population that does the rural portion of the state.

Figures at top of chart indicate years from 1900 to 1913 inclusive. Figures at side of chart represent deaths from all causes, per 1,000 of population.

The first impulse of every rural citizen on reading these figures was to question their accuracy. It was claimed that towns and villages of less than 8,000 inhabitants are in no sense rural and that they should not have been so reckoned. Also that many people go to the country when in failing health, and that they should not be counted as residents.

The Rural New Yorker publishes the following extracts from

a letter written by Commissioner Biggs, replying to these arguments:

“Instead of decreasing the death rate in the rural districts, you would find that if the deaths of non-residents occurring in the cities, where so many persons are taken for hospital treatment, were charged to the district in which they have legal residence the death rate in the rural districts would be increased. I realize the fact, of course, that deaths occurring in institutions located in the rural districts would materially increase the death rate of such places, but if eliminated from consideration all deaths of persons occurring in state institutions the rural rate would exceed that of the cities by at least one point.”

“By excluding all places above 2,500 and including such statistics with those of our cities, the rural death rate is decreased only one-tenth of a point and exceeds that of the rest of the state by nearly one point.”

As these facts became generally known there was an instant response from the state grange and other organizations in rural sections of New York. These organizations ask for a Division of Rural Hygiene which shall make an “intensive study of rural health conditions” and remedy “all possible defects in rural sanitation and hygiene and rural public health administration.”

This movement will doubtless bring great results, but it will take time to organize and finance the work. Meanwhile, every housewife in the state has an opportunity which she should be quick to seize. She can make living conditions right for her own family and thus safeguard them and indirectly her own neighborhood and the state.

NATURAL ADVANTAGES IN COUNTRY

All natural advantages for health and long life are in the country. Sunshine, pure air, good food, comfortable housing, are all within the reach of country dwellers, while the conditions of life in other respects are certainly not harder than in the city. But these very advantages have made country people careless of necessary sanitary precautions.

Since outside air in the country is pure, it is assumed that the air in country bedrooms and country school houses must be pure.

Since the well has furnished pure water for generations it is assumed that it will continue to do so.

The insanitary privy has been in use so long that those accustomed to it overlook its obvious dangers, and men and women in the country have failed to realize that, with great gangs of migrant laborers on canals and state roads, followed by freer travel, there is increasing opportunity for the spread of communicable diseases.

The city health officer protects the drinking water of every resident of the city, whether he lives in a palace or a tenement. The city sewer carries the waste from each family to a common disposal plant or outlet. Hospital care, or the rigid quarantine of communicable diseases, is enforced by law in the city, and the greater its natural disadvantages as a dwelling place, the greater is the activity of its health officers. The rural health officer has no assistants; his salary is almost negligible and his territory too large for effective work.

HOUSEWIFE THE HEALTH OFFICER OF THE HOME

The housewife must add to her other duties that of health officer of the home. This means that she must study personal hygiene and the sanitation of rural premises, including the house and all outbuildings.

* "Sanitation of the home is the unit which determines the general level of the sanitation of the state," and a high level of both will save lives valuable to family and state. If the death rate in the country last year had been as low as that in New York City 3,000 lives would have been saved. That fact is a measure of the opportunity within reach of the farm woman today.

BUILDING SITE

Most of the farm houses in New York State are on sites which have been occupied for many years. While they often have many natural advantages they seldom conform to the requirements of the modern sanitarian, and in almost every case the ground about the house is more or less defiled by the wastes of family life.

* J. H. Landis, Chairman of the Commission on Industrial Hygiene and Sanitation of the Home.

A good site must be on porous soil which will absorb water quickly, and it must have sufficient elevation above the surrounding fields for good natural drainage. This natural drainage is needed to carry off rain water and accumulated snow banks in the spring, but we no longer trust it to take care of house sewage.

THE HOUSE SHOULD FACE THE SUN

The house should have a southern exposure if possible. Very rarely it may be necessary to build facing the north. In that case especial care should be taken, in planning the interior, to put living rooms at the sides or rear of the house, while halls, closets and perhaps the little-used parlor occupy the front.

Sunshine is a treasure not only in itself but for the work it can do in destroying filth and disease germs. Tubercle bacilli exposed to full sunshine are killed in twenty-four hours or less. In light rooms without direct sunshine they may live several days, while in dark and damp cellars they may live indefinitely.

All barns, stables and outbuildings should be on a lower level than the house for the protection of the well, and in a direction opposite to that of the prevailing winds, so that the air currents will not bring odors or flies, which are much more dangerous.

Fig. 292 shows a desirable method of planting vines, to conceal unlovely spaces and yet to permit free entrances of air and sunshine to the house.

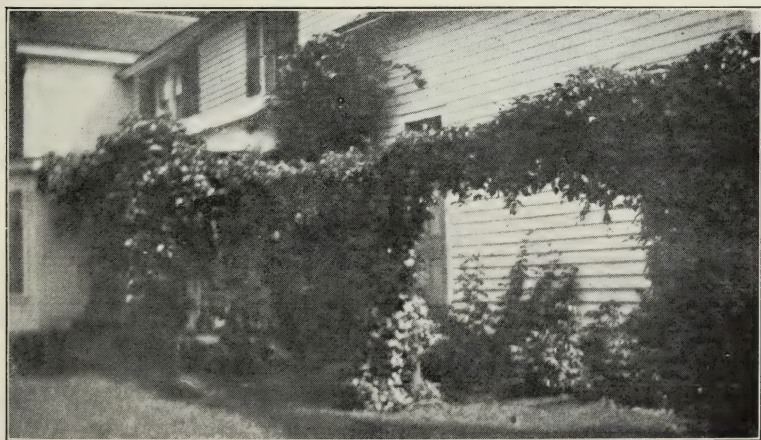


FIG. 292.—VINES SCREENING A SIDE PORCH. VINES TRAINED ON FRAME SIX FEET FROM HOUSE.

There should be abundant shade, but not too near the house. Evergreens may be desirable for wind breaks or as screens for unsightly buildings, but for other purposes deciduous trees are far better. They give free access to winter sunshine and to summer breezes, while they are much more cheerful in effect.

Flower beds should generally be in borders or at a distance from the house, while thick turf should surround it on all sides.

The old idea of a good cellar was that it should be cool and dark for the keeping of vegetables and fruit. Modern knowledge of the growth of moulds and bacteria demands other conditions. The cellar should be dry, light and ventilated by well screened windows which provide for cross draughts.



FIG. 293.— A FIELD-STONE FARMHOUSE.

Many of the old houses in the state have grown with the years to accommodate the changing needs of the family and are worthy of imitation by modern builders. The picture on this page shows a house which was built a hundred years ago by the father of the man who now occupies it. He quarried the stone from his own ledge, cut the lumber from his own forest and built with such taste and skill that the house has needed but little change with the passing years. The veranda, which was added by the son, is de-

lightful in summer but excludes too much of the winter sunshine. It would have been better had the roof extended only over the door and windows nearest it on either side.

It is wise to employ an architect for even the most modest house, since mistakes in construction are not easily remedied.

The square house with flat roof so often seen in country districts has nothing to recommend it except simplicity in design and ease of construction, and yet in many parts of New York State it was the common pattern for many years. Preceding it we had stately houses of colonial type, than which nothing finer could be imagined. The tendency at present is to adopt the bungalow type, which is admirably adapted to summer homes and tropical climates, but is not so desirable during the long northern winters, and is relatively costly when the roof needs repairs or replacement.

Whatever style of building is adopted, the living rooms and bedrooms must admit plenty of sunshine and air and be comfortably heated at all times. Bedrooms should be so located that they may have windows on more than one side, insuring cross currents of air. Windows should open from both top and bottom and be supplied with some convenient fastening.

In the the northern part of the state much discomfort is experienced in winter from frosty windows. Unless the air in the room is too dry for health, the windows are heavily coated with thick frost, which in thawing drips over window sills and floor.

To prevent this inconvenience it is a common practice to double all the windows. As the outer windows are often fixed immovably it is impossible to ventilate houses so provided. To obviate this danger both sets of windows may be fitted with pulleys and weights. With such an arrangement rooms can be ventilated and draughts excluded even in the coldest weather by a proper adjust-

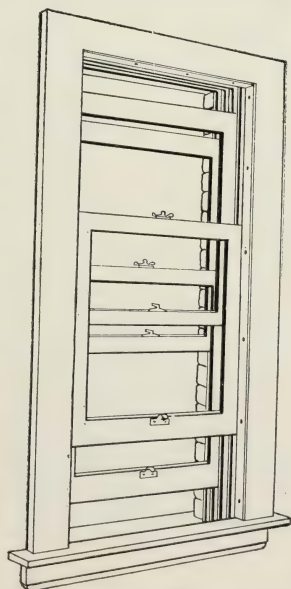


FIG. 294.—PROPER ARRANGEMENT OF DOUBLE WINDOW SASH.

ment of outer and inner sash. In the case of an old house which will not admit of this plan, the outer sash should cover the whole window and be swung from hinges at the top. With proper fastenings the inner window can be raised and the outer one opened so as to admit air freely while excluding storms.

Methods of ventilating large buildings, like hospitals, theaters and school buildings, are rapidly changing, since recent investigations prove the problem to be physical rather than chemical.

The exact proportions of oxygen and carbon dioxide in the air are not so important as the older physiologists believed. It is rather the dust and moisture content of air, and its stagnation in unventilated and crowded rooms which makes it oppressive and dangerous.

FRESH AIR

* "There is no expression more common than that of 'fresh air.' Just what is meant by this term? It certainly does not involve the factor of air temperature to any extent, for we use the expression both in winter and in summer, and at times when the outside and indoor temperatures are the same. Neither does it involve humidity. In the opinion of the writers it may be regarded as practically synonymous with clean air in motion, air that is free from dust, from bacteria, and from malodorous or offensive organic emanations and poisonous substances." The newer systems of ventilation provide for constant currents of air through the rooms. This air may be from outside or it may have already been circulated through the building. In the latter case it is subjected to various processes by which its impurities are removed. These processes

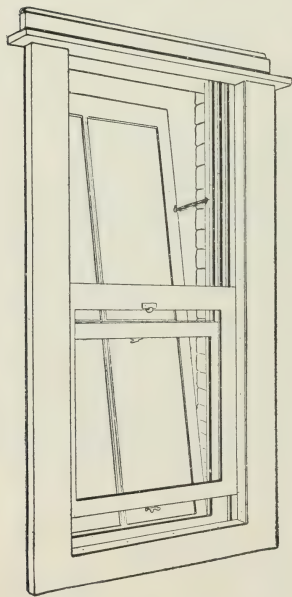


FIG. 295.—PROPER DOUBLE SASH IN AN OLD HOUSE.

include filtering, washing and deodorizing it. After all these processes it may be reheated and returned to the rooms

* George C. Whipple and Melvin C. Whipple in the *American Journal of Public Health*, November, 1913.

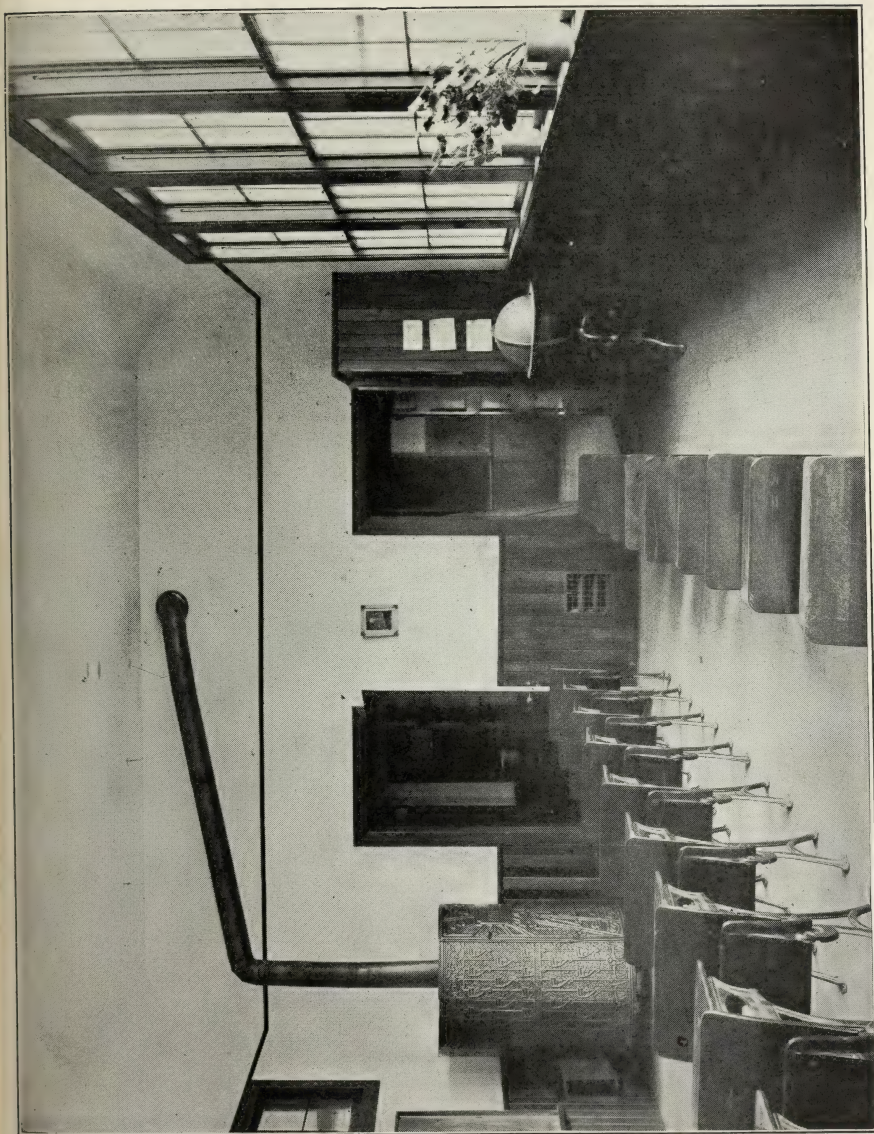


FIG. 296.—A ONE-TEACHER SCHOOL IN WESTCHESTER COUNTY PROPERLY LIGHTED FROM ONE SIDE WITH WINDOWS IN MASS ARRANGEMENT.

The fresh air comes in through the wall into the drum surrounding the stove. Here it becomes heated, passes to the top of the room, is diffused throughout the room, and then drawn off at the bottom into the register at the bottom of a chimney, the current of air in the chimney being controlled theoretically at least by the heat from stove pipe, which enters the chimney near the ceiling. It would be better if the foul air entering controlled the level of the floor instead of up 8 or 10 inches.

from which it was taken. Such methods of ventilation involve great care and expense, which restricts them to large buildings, in which it may be even more expensive to heat outside air in winter.

The old method of opening the windows is still the only practical way for the ordinary dwelling house. "Insufflation" is the new term for what our grandmothers called "changing the air" by opening wide all the doors and windows. It is an admirable method whenever the regular supply of fresh air is insufficient.

The muslin curtain is the simplest way of providing for constant ventilation without draughts, but it is seldom sufficient except in the most severe weather, when the temperature outside is many degrees colder than that inside the room.

The fear of draughts is almost universal, but the danger from them is greatly exaggerated. A small opening admitting cold air on a limited surface of the body is to be avoided, but sitting or standing in a free current of air is not injurious.

TEMPERATURE

The desirable temperature for living rooms depends somewhat upon the age and physical condition of their occupants. Old and feeble persons as well as young children require higher temperatures than robust adults who are busily employed. Professor F. S. Lee, of Columbia University, gives the following scale of temperatures as advised by American ventilating engineers for heated rooms:

Occupants at Rest	Degrees F.	Occupants Physically Active	Degrees F.
Living rooms, offices, schools..	68	Gymnasiums	60
Lecture halls.....	61-64	Work shops, moderate exertion	61-64
Sleeping rooms.....	54-59	Work shops, vigorous exertion.	50-59
Bath rooms.....	68-72		

Sleeping rooms may be of much lower temperature than given if the air is pure, the sleeper warmly clothed and the bed properly made. Outdoor sleepers find that a freezing temperature causes no discomfort when the bed is screened from wind and other conditions are right.

THE HEATING PLANT

Ventilation is aided by most methods of heating. The great exceptions are the steam and hot water systems, which should not be installed without some provision for artificial ventilation.

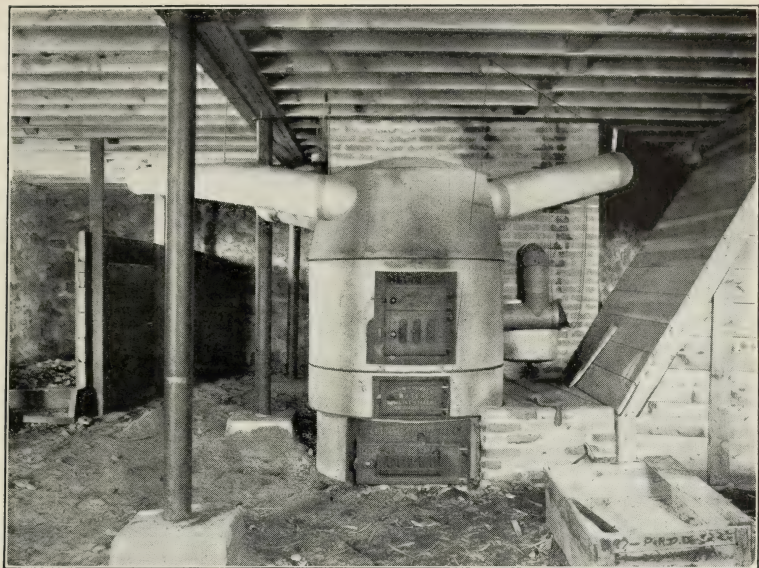


FIG. 297.— BASEMENT OF A ONE-ROOM SCHOOL IN THE HEART OF THE ADIRONDACKS.

This is a more satisfactory arrangement for ventilating than Fig. 296. It makes ample provision for supplying fresh heated air to the schoolroom above and avoids having a stove of any kind in the schoolroom. The distribution of heat in this schoolroom is likely to be even.

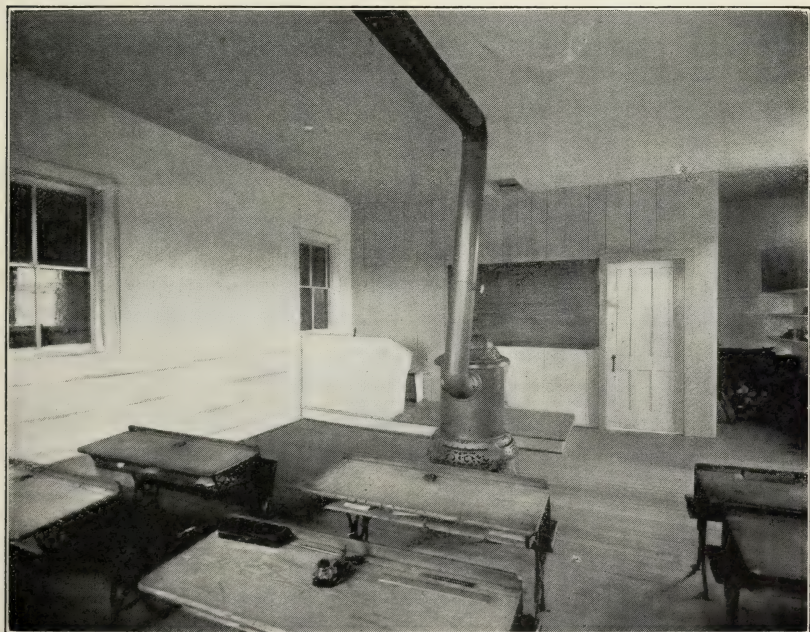


FIG. 298.— THE OLDER TYPE OF COUNTRY SCHOOLROOM WITH A STOVE IN THE MIDDLE OF THE ROOM.

Adapted for the use of coal as well as wood. No provision is made in this room for ventilation except the cracks about the doors and windows and the opening in the ceiling, the latter being very unsatisfactory as the hot air tends to go directly from the stove to the opening in the ceiling, without circulating about the room at all.

Since opening windows on very cold nights involves the possibility of freezing the water in radiators, many householders and hotel proprietors forbid the practice, making some artificial system imperative. Wood and coal stoves, with open draughts, carry much foul air out of rooms in which they burn, and thereby increase the natural ventilation. The same thing is true of gas stoves, when they are provided with a flue leading to the chimney, which unfortunately is not always the case. Portable gas or oil stoves should never be used for heating. One such stove devitalizes more air than a dozen men.

Hot air furnaces may be so installed as to admit a constant current of fresh, warm air and so serve as efficient ventilating and heating plants combined. The common practice of re-heating the air from the inside of the house by simply passing it through the furnace is to be condemned. Fireplaces offer an excellent means of ventilation, but are seldom useful unless a fire is burning in them. To test the chimney as a ventilating shaft, release bits of down or fluffy silk at its throat; unless they are promptly drawn up by the current of air the chimney is not acting as a ventilator.

THE HOUSE FLY

Flies are "common carriers," not of desirable commodities, but of filth and disease. Their bad reputation depends on the fact that they breed in filth, feed on filth and carry filth wherever they go. They travel from filth to food by the shortest route, but never buy a return ticket. There is ample proof that epidemics of typhoid fever have been carried by flies, and they are often called "typhoid flies" on this account. Cholera infantum and other diarrhoeas of infants are spread in the same way, as are many other diseases, especially in the tropics. There is not so much danger in the case of tuberculosis, since flies seek sunshine, which will eventually destroy the bacilli. There is proof, however, that active bacilli of tuberculosis may be conveyed to food on the legs and bodies of flies, and that they may also be deposited in the "fly specks", so little noticed by careless housekeepers.

FLIES DO NOT ORIGINATE DISEASE

It is important to remember that flies and other insects are carriers, not originators of diseases which are dangerous to the human family. If all infected materials were promptly destroyed or disinfected, flies would be incapable of causing disease.

Just here comes in the opportunity of the housewife to safeguard her family. There can be no typhoid fever or tuberculosis without the presence of the germ from some previous case of the same nature.

METHODS OF CONTROL

It is easier to prevent flies from breeding than it is to trap them or to screen the house against them. Dr. Felt, State Entomologist, is authority for the statement that flies are seldom numerous more than three to five hundred feet from their breeding place. All stables should be cleaned daily and the manure carried at least that distance away from the house. As winds often carry flies and other insects considerable distances, the location of barns and stables is important. The most dangerous breeding or feeding place for flies is the privy, in which germs of human disease will sooner or later be deposited. After that comes refuse heaps or decaying matter of any kind, if soiled by sputum or other dejecta from the human body. Garbage pails near the milk room, with flies as go-betweens, multiply filth germs in the milk, rendering it unfit for food, but typhoid fever will not originate in this way. Since farm houses are seldom close neighbors there is little danger from flies unless they are home bred.

PURE WATER

Early settlers in any region rightly regard a pure and abundant water supply as the chief requisite for the home site. A living spring is chosen, if possible. Lacking this, the house is built by a spring brook or wherever a good well can be located. The barn also must be convenient to the well, for the animals must have water. With the barn comes the barnyard, and with the house the privy, the slop drain and other sources of filth. There is no magic cleansing power in the earth; the millions of bac-

teria which swarm in the upper layers of the soil can and do purify organic waste by oxidizing it, but these bacteria depend on sunshine and air for their life. Ground over which water is constantly poured becomes clogged, no longer admits sunshine and air, and the bacteria die. When the top layer of soil becomes thus clogged it must have time to work itself clear before more waste can be oxidized. In winter the conditions are much worse. Slops and other waste are not in any sense of the word purified by being thrown on the ground in winter. They may be frozen and so made harmless for the time being, but it is to be only more dangerous in the spring when they are carried rapidly into the streams. Prudden found typhoid bacilli active after they had been frozen one hundred and three days. Repeated freezing and thawing would probably destroy them sooner. Burial of filth disposes of it too slowly for practical purposes. Disease germs have been known to live fifty or sixty days in damp soil. Tetanus or lockjaw is usually contracted from bacilli or their spores which are deposited in the soil.

It is not pleasant to drink from wells known to be contaminated from any source, but danger comes from the house and its surroundings. **"It has never been definitely shown that filth per se, minus infection, will produce disease."* Typhoid fever is the familiar example of water-borne disease, but other infections, especially of the intestinal tract, are conveyed in the same way. *"Where one death from typhoid fever has been avoided from the use of better water, a certain number of deaths, probably two or three, from other causes have been avoided,"* says Allen W. Hazen.

The comparative death rates from diseases of the digestive system in urban and rural New York for the year 1913 per hundred thousand inhabitants follow:

	Urban: Towns over 8,000.	Rural: Open country and towns un- der 8,000
† Typhoid fever	9.8	12.1
Diarrhoea and enteritis under two years.....	75.7	52.6
Over two years.....	12.4	23.4
Other diseases of the digestive system.....	69.7	73.3

* Nicholas E. Hill, Jr., and Leon Whitecomb.

† From the *Monthly Bulletin* of the State Department of Health.

The mortality of children under two years depends largely on the quality of the milk fed. After that age water is relatively more important.

In limestone regions there are many seams and "faults" in the rock strata which may convey filth from long distances to the well. A layer of hard-pan or clay, tilting toward the well underneath shallow surface soil, may be equally dangerous. Loose gravel offers but slight protection, though the power of most soils to purify water by filtering it is undoubted. Soils which were originally competent to safeguard wells may be so no longer, owing to length of service or increased sources of pollution. Neither the sense of taste or smell can be relied on to detect impurities, nor will a chemical examination always reveal the defect, since bacteria of disease are the dangerous constituents. Prescott, of the Massachusetts Institute of Technology, reports a most interesting series of examinations of farm water supplies:

"Examinations by the writer of the water supplies of two hundred and two dairy farms situated between twenty-five and forty miles from Boston have yielded results which are of much interest in showing actual conditions likely to be met in a long settled, intelligent and well inspected region, probably rather superior hygienically to the rural districts of most of the country. Of these two hundred and two farm water supplies, twenty-nine, or 14.4 per cent., were shown to be badly polluted, either from privies or from some other sources, so that the water was unfit for use as a drinking water or for domestic purposes, or for the washing of milk utensils, pails, cans, strainers, etc.,—purposes to which these waters had been put. In addition to the foregoing, ten gave evidence that the danger of contamination was immediate, although the analysis showed in each case that intestinal types of organism were not actually present in the water. In some instances these were wells located in the barnyard and hence likely to receive pollution with a heavy rainfall by the influx of polluting surface material, or they were in too close proximity to sink-drains, privies or some other dangerous source.

"For practical purposes, therefore, thirty-nine wells out of 202 were condemned as either being actually polluted with in-

testinal organisms or in danger of pollution at any time. Practically, then, one-fifth of the wells of a portion of the country, well above the average, were found to be of this undesirable character."

The most frequent source of pollution of wells is from surface water which enters at or near the top. To exclude this danger it is necessary to make the well casing water-tight at least twelve feet below the surface of the ground. In addition, the well-casing should be continued several inches above the surface and a perfectly tight platform or other cover provided.

Unsuspected danger may be accidentally revealed, as in the case of a school well which was considered safe until a gasoline tank was installed at a considerable distance. The water promptly smelled and tasted of gasoline, proving surface drainage.

Other things being equal, the deeper the well the smaller the chance that the water is unsafe. In many regions wells which were formerly unfailing in supply are now dry at certain seasons. This is forcing farmers to dig new and deeper wells, or to sink the old wells to lower levels, thereby lessening the chance of contamination.

A VITAL NEED

The vital need in the sanitation of the farm home is the installation of running water with a safe system of sewage disposal.

The development of the septic tank and its adaptation to small houses has made it possible for every farm house to install as complete a system of plumbing as may be desired, and at no greater expense than that incurred in city houses.

The modern water closet discharging into a well-built septic tank, with sub-surface disposal of the effluent, solves the problem of the disposal of human waste. It protects the well from pollution by this waste, while it banishes the privy, which has been the chief nuisance on the farm.

Running water in the house provides the comforts of a modern home, while it is the greatest single factor in the lightening of woman's work. It is as wasteful of time and strength to pump water by hand as it is to mow with the scythe or reap with the sickle.

WATER SUPPLY

The ideal water supply for the house is from a spring of pure soft water coming under its own head into the upper story. Few farm houses are so situated as to realize this ideal, but the rain falls on the roofs of the just and the unjust alike.

Lacking the spring, rain water may be stored in cisterns just under the eaves, whence it can be distributed to lower levels of the house. Since the consumption of water increases with the ease of obtaining it, large families are likely to find the supply of rain water inadequate.

Streams or wells furnish an abundant supply, but in limestone regions well water is usually too hard for domestic use. The water may be pumped by windmill, gasoline engine or other power to any height which may be needed to supply the house.

A better system is to store the water in a tank situated in the cellar or under ground. The same power which fills the tank with water keeps it under sufficient air pressure to raise it to the desired height. An automatic system may be installed which delivers the water direct from the well. Probably the pressure tank is better adapted to general farm use than any other system. Such a tank may be large enough to furnish a supply for days, or it may be filled regularly at a certain hour. Small tanks may be filled by hand, provided the hand which runs the pump is not the one which rocks the cradle.

The installation of plumbing may be as elaborate or as simple as desired, but it is essential that every pipe be safely trapped and that there should be no leaking joints.

All plumbing should be exposed and clean-out traps readily accessible. Since most farm houses are at a distance from the plumber some person in the family should be competent to keep the system in order.

ACTION OF SEPTIC TANK

The septic tank provides for the sedimentation of the sewage delivered to it. It utilizes the putrefactive bacteria present in all house sewage and which have the faculty of digesting and liquefying these solids under favorable conditions.

It is the most important part of the whole system, since it is charged with the safe disposal of human waste.

A tight tank, admitting neither air nor light, is made large enough to contain about twenty-four hours' sewage from the house. It is buried twelve to eighteen inches under the surface of the ground, at a convenient distance to secure the right inclination for the soil pipe which brings the sewage into it. It may be made in a single compartment, but is better with two compartments, the first to receive the sewage and hold it long enough to allow the solids to settle and putrefactive processes to be established. The effluent is discharged from the second compartment which will contain no solids and in which the liquids are more or less purified by the continuing bacterial action. The discharge may be intermittent by means of an automatic siphon, or constant by way of a pipe which must dip underneath the surface of the liquid by means of an elbow. If a constant discharge is maintained it should be at a level which will keep the contents only a few inches below the top of the tank.

The bacteria which liquefy and purify the sewage in its passage through the tank multiply rapidly until they form a heavy scum over the surface of the contents. To provide against breaking up this aggregation of bacterial growth, which is essential to the septic treatment of sewage, the pipes which conduct the sewage into the tank and also those by which the effluent is discharged dip under the surface of the contained liquid.

Since sewage varies in quantity and quality, the degree of purification and liquefaction which takes place in the tank will also vary. The effluent should be liquid, free from disagreeable odor or appearance, although not sufficiently purified to be discharged into a stream. It is therefore distributed through a sub-surface system of tile laid with broken joints at a slight incline. The area over the tile may be a part of the lawn or it may be utilized for the growing of flowers or bush fruits. It would be unwise to grow lettuce, celery or similar vegetables on this soil, as pollution might result.

The cost of installation will vary with circumstances. Dr. E. M. Santee, in his little book "Farm Sewage", says that he built a septic tank on his New York farm for \$11.57. Twice that

sum would perhaps be needed in most localities. Plumbing and septic tank complete ought not to cost more than \$300 in any part of the state. This money would earn about \$15 a year in the usual investment. Invested in the farm house it adds at least its amount to the value of the property. It also secures what is more valuable than money — improved health for each member of the family, comfort in the house, ease in doing the work and an important factor in determining the young people to stay on the farm.

If the water supply is stored by the pneumatic tank system it gives protection in case of fire.

If strict economy is necessary, the septic tank and water closet should be installed first, and the system completed at a later date.

The Kentucky State Board of Health has devised a septic tank for use with outdoor privies which does not require running water. It is simple and inexpensive and requires for operation only the regular daily addition of one or two pails of water. This is admirably adapted to summer homes or camps, but would probably freeze in our northern winters. Such a tank should be emptied or protected from freezing when the season is over.

Farmers' Bulletin 463 of the United States Department of Agriculture describes a sanitary privy in which a barrel or other container serves as an inexpensive substitute for the septic tank. It illustrates also the construction of a sanitary dry privy and gives careful directions for the disposal of its contents.

A most complete and valuable bulletin has been recently issued by the United States Department of Agriculture with the title, "Water Supply, Plumbing, and Sewage Disposal for Country Homes." It contains all the information needed by those planning to install such a system.

PERSONAL HYGIENE

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Dr. Howard Kelley, an eminent gynaecologist, opens a discussion of the development of girls in this way:

"The most important factor in the development of a healthy girl baby into a healthy young woman is an intelligent mother."

No one will deny that boy babies are equally dependent on the mother.

Mother love comes with the child, but it must be supplemented by intelligence and training in the care of children to bring even fair results. It is estimated that at least 80 per cent. of full term babies are healthy at birth. Given good food (which means breast feeding for the first nine or ten months), fresh air and protection from infection, the baby should thrive like any other young animal. And yet, as phrased by Bergeron, "A baby who comes into the world has less chance to live a week than an old man of ninety, and less chance to live a year than one of eighty."

There are no statistics of infant mortality in the strictly rural districts of New York state, but there is strong presumptive evidence that it is not so much lower than in the cities as it should be. About one out of four deaths of city and village babies is preventable. We know that the preventable diseases of adults are relatively more frequent in the country than in the city, and it is fair to assume that one out of four deaths of country babies might be prevented. While the total infant mortality in rural New York (including cities of 8,000 inhabitants) is decidedly lower than in urban New York, it has been stationary for three years (1911, 1912 and 1913), while the cities have reduced their infant mortality rate from 20.6 per cent. of total deaths to 18.7 per cent. in the same time.

INFANT MORTALITY AN INDEX OF CIVILIZATION

Infant mortality is accepted as the most reliable index of the social and economic status of nations, and a high death rate

among children of a city or state indicates defects in sanitary administration or some other preventable cause.

It is equally true that a high infant mortality in the family implies hereditary defects or inferior care.

Hereditary defects may be either paternal or maternal, but prenatal conditions and the care of the child from birth depends very largely upon the mother. Her responsibility for the welfare of her child is only equalled by her opportunity to control its environment, and that opportunity is greater in the country than in the city.

Little credence should be given to tales of wonderful impressions on the character or tastes of children because of the mother's occupation or thoughts during pregnancy, but the physical and mental health of the mother during that time does to a great extent control the development of the child. Whatever conduces to the health of the mother goes far to insure the health of the child. Freedom from excessive toil, plenty of good food, fresh air in abundance, all the sleep which is desired and contentment of mind are essentials for the prospective mother.

Perhaps freedom from excessive toil is more difficult for the woman on the farm to obtain than any of the other conditions. That it is not the least important is indicated by the fact that the sense of fatigue is occasioned by a toxin generated in the body by exertion and that this toxin accumulates until dissipated during rest. Moderate exercise, as in light housework, is doubtless beneficial during pregnancy as at other times.

The responsibility of the mother for the welfare of the child is perhaps never greater than during these formative months preceding its birth.

DANGER FOR LITTLE CHILDREN

The lives of the new born are imperilled by three chief causes: insanitary conditions in and about the house, unsuitable food and impure air. The surface drain, decaying refuse of any kind, garbage pails, the unspeakable condition of many privies, all contribute danger to the little child in proportion to its frailty. It is not probable that evil odors in themselves convey disease, but their presence is a danger signal which should not be ignored.

Disorders of the digestive tract cause about one-half the deaths of babies under two years of age. This means unwise feeding, for the children are mostly born healthy. Country babies should have the best of milk, since the supply is absolutely under control of the parents, but this confidence in the purity of the milk is apt to encourage carelessness in its use.

Twice as many children in rural New York under two years of age died of diarrhoea and enteritis in 1913 as were lost by scarlet fever, measles, whooping cough, diphtheria and croup at all ages. Breast feeding is the greatest preventive of gastro-intestinal disease in the first year. Breast-fed infants are also much more likely to escape infectious diseases than the bottle-fed, probably because of their greater vitality.

Since fresh milk can be had twice a day, it is a common practice in the country to keep the babies' milk in an uncovered dish from which the different feedings are poured as needed. This practice oftens leads to contamination of the milk by dust, flies or other causes, while the different feedings vary in quality, depending on the time of day.

The milk should be quickly cooled and bottled in sterile bottles containing only one feeding. The bottles should be stoppered with dry absorbent cotton and the milk warmed for feeding by standing the bottle in a basin of hot water. These precautions are as necessary in the country as in the city, where the children of prosperous families have the advantage of certified milk.

BOVINE TUBERCULOSIS

There is one danger to country babies which is often overlooked. If there is a cow in the dairy which is passing the bacilli of tuberculosis into the milk, these bacilli will reach the child living and active, since but little time elapses between the drawing of the milk and its consumption by the child. This danger is greater still for older children who often drink milk in the stable while it is still warm from the cow, though older children do not succumb to infection as readily as infants.

It is no longer questioned that many cases of tuberculosis in children are caused by bovine infection conveyed by milk. Dr. Wm. H. Park reported in 1910 that over two per cent. of the

total deaths from tuberculosis in New York city were due to the bovine type of the disease and that in little children the proportion was much greater, probably as high as ten per cent.

The following table was published in the Journal of Medical Research September 1, 1912, by Park and Krumwiede. It is based on the results of autopsies in 1,511 cases and indicates the percentage of cases in which infection of bovine tuberculosis was present. Not all the cases died of tuberculosis, but all had tuberculous infection more or less marked.

PERCENTAGE INCIDENCE OF BOVINE INFECTION

DIAGNOSIS	Adults 16 years and over	Children 5 to 16 years	Children under 5 years
	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
Pulmonary tuberculosis . . . . .	.4	0	2.8
Tuberculous adenitis, cervical	2.7	38	61
Abdominal tuberculosis	20	53	58
Generalized tuberculosis, alimentary origin	14	57	47
Generalized tuberculosis	0	16	8.6
Generalized tuberculosis, including meninges, alimentary origin	0	0	66
Tubercular meningitis (with or without general- ized lesions other than preceding)	0	0	4.6
Tuberculosis of bones and joints	3.3	6.8	0
Tuberculosis of skin	23	60	0

Tuberculous adenitis is the scientific term for enlarged glands occurring most frequently in the neck. Children with these enlarged glands are often called "scrofulous" and they are never in good health.

FRESH AIR FOR THE BABY

The summer baby can be put on the porch in good weather almost from the beginning, and as colder weather comes on the practice need not be discontinued. A child of six months may have a nap out of doors in moderate winter weather if warmly wrapped, and will be more likely to escape the acute respiratory diseases than if kept indoors. Such a child will sleep better, eat better and cry less than its neighbor kept in a stuffy room, and its chance of living will be more than doubled.

Pneumonia, bronchitis and croup are the logical result of foul

air and overheated rooms. We have much to learn about the physiological effect of fresh air and why it is so great a factor in health, but we know by experience that it is necessary.

An open fire in the nursery is a great thing for the winter baby, who must be kept inside until warmer weather. If the fireplace is lacking, a constant supply of fresh air without draughts can be had by the use of the muslin curtain. Have two or three frames fitted to the windows of the room and covered with unbleached muslin of different grades. They should be adjusted as fly screens are in summer. One or more of these frames should be in constant use, the heavier muslin being reserved for very cold or windy days. It is better to fit the frames into the top of the window, although it will not make any great difference in ventilation.

CHILDREN'S DISEASES

Dr. Baker, director of child hygiene in New York city, reported some time ago that there are practically no epidemics of children's diseases in New York today. School nurses inspect all school children daily and every suspicious case is seen by the school physician before reporting in the class room. Sick children or those who are apparently developing illness are sent home with a note to the parents. This course insures prompt care for the child and prevents the infection of his classmates.

The ultimate gain in health resulting from this supervision cannot be estimated until this generation of children has passed through all the phases of life. The mildest infection leaves its mark on the child suffering it, while the more serious children's diseases often impair the health for life. The succession of measles, whooping cough, bronchitis and pneumonia or tuberculosis is not uncommon; while scarlet fever and acute nephritis, rheumatism (beginning as growing pains) and heart disease, adenoids and deafness are more frequent.

Children ought not to suffer from preventable diseases, and the whole list of so-called "children's diseases" come in that class. Smallpox was once a children's disease, because practically all adults had had it. "Where one life may be saved by appropriate treatment," says Porter, "a thousand lives may be saved by timely preventive measures."

There is neither nurse nor physician in rural schools, but mothers can keep ailing children at home, protecting them from exposure and in many cases preventing serious developments.

The mother's responsibility is not only for the care of her own child in sickness. She must also protect other children in the neighborhood. The lighter infections are naturally less dreaded than the more serious diseases and hence comparatively little effort is made to stay them. But more children in rural New York die from measles than from scarlet fever, and more from whooping cough than from diphtheria and croup.

CATCHING COLD

Common colds are the great predisposing factor to other infections of the respiratory tract, such as bronchitis, pneumonia and tuberculosis. They are germ diseases and are transmitted by the secretions from the nose and throat and perhaps in other ways.

Colds may be brought on by exposure to cold and wet or by sitting in a draught, but the common cause is overheated and ill ventilated rooms, together with the germ-laden dust usually found in such rooms. Fatigue, loss of sleep, improper food or any other cause which lowers the vitality predisposes to infection. The first symptom is usually a feeling of chilliness which gives rise to the mistaken belief that the cold is "caught" by standing in a draught or other exposure.

Many children have a constant succession of colds throughout the winter. In almost all cases such children are found to have adenoids, enlarged tonsils or nasal defects which interfere with normal respiration. The results are many; deafness and chronic ill-health are perhaps most noticeable.

The best treatment of a cold is to rest quietly in a properly warmed and ventilated room for the first two or three days. As it is most infectious during the early stages this plan will also do most to prevent its spread to others.

Other common infections which are spread by the discharges from the mouth and nose are influenza, measles, mumps, scarlet fever, whooping cough, pneumonia and tuberculosis.

INFLUENZA AND WHOOPING COUGH

The most difficult to control is influenza, because it is highly contagious, not prevented by previous attacks and its early symptoms are so much like those of common colds that it is often disregarded during its most contagious period.

Whooping cough, like influenza, resembles a common cold at the beginning and on that account is difficult to control. It is among the most fatal diseases for children under five years of age, but mothers frequently allow children suffering from it to mingle freely with other children, even sending them to school. It is most contagious as soon as the cough begins, and may be transmitted five or six weeks after symptoms disappear.

MEASLES

Few children escape measles, since it is highly contagious, especially before the eruption appears, and is regarded as a mild disease. It kills more children than scarlet fever, which is now rigidly quarantined in most places.

DIPHTHERIA

Diphtheria has lost much of its terror since the introduction of antitoxin, which has remarkable curative power if used early. It will also prevent infection of such persons as are treated with it, but it has no power to prevent the spread of the disease in any other way. It cures the patient but does not kill the bacilli.

Diphtheria is relatively more common in rural districts than in cities, probably because of less efficient quarantine and because its diagnosis is often impossible without the aid of the laboratory. It spreads rapidly in the fall when schools open and declines as rapidly with the closing of schools in the spring.

SCARLET FEVER

Scarlet fever is disseminated in much the same way as the diseases previously considered. The discharges from the throat and nose doubtless contain the infective material, though no specific germ has been discovered. The disease is often spread by mild cases with little or no eruption which pass for simple "sore throat".

It was long thought that the stage of desquamation or "scaling" was the most dangerous. This is not true unless the discharges from the nose and throat continue during desquamation.

SOURCES OF INFECTION

There is a good deal of misconception as to how communicable diseases are contracted. With the possible exception of influenza, none of them are air-borne for any considerable distance. It is in fact becoming common practice to treat many of these diseases in hospital wards. Close contact with the patient seems necessary for infection. Indeed, it is probable that the minute particles of sputum and saliva which are expelled in the act of coughing and sneezing are necessary for infection to take place. Dust, handkerchiefs, spoons, cups, hands soiled with sputum or nasal discharges, flies and other insects all convey the diseases. Of all means of infection it is quite possible that soiled hands are most important, and saliva the most frequent infective material on the hands.

COMMON CLEANLINESS

The mother's opportunity to safeguard her children from infection depends largely on her teaching of personal hygiene and common cleanliness. Dr. Henry Chapin of New York calls attention to an almost universal habit when he says: "Not only is the saliva made use of for a great variety of purposes, and numberless articles are for one reason or another placed in the mouth, but, for no reason whatever, and all unconsciously, the fingers are with great frequency raised to the lips or nose. Who can doubt that if the salivary glands secreted indigo the fingers would not continually be stained a deep blue, and who can doubt that if nasal and oral secretions contain the germs of disease these germs will not be almost as constantly found upon the fingers?" Greater danger is incurred by young children who swap gum, candy and other dainties and by babies who creep over floors soiled by infected material.

If every individual in the community habitually covered the mouth when coughing or sneezing, washed the hands thoroughly before eating or preparing food and abstained from moistening the fingers with saliva, health officers would have little to do in controlling the spread of contagious diseases.

TUBERCULOSIS

Tuberculosis is essentially a disease of overcrowding and unfavorable living conditions in general. With the building of county hospitals for the care of those already infected, it ought practically to disappear from country districts. But there were in rural New York last year 2,583 deaths from this preventable disease. If every mother in the state could give her children good food, suitable clothing and plenty of fresh air and sunshine, it would mean comparative safety for them. If in addition she could teach them to stand erect, to breathe deep and to avoid the common drinking cup and other sources of infection, including soiled hands, they need have little fear.

The tuberculous individual is not always awake to the fact that his own opportunity to prevent the spread of the disease is greater than that of all the well people in his vicinity. He should train himself to the utmost care in the simple rules of cleanliness and good breeding. No well-bred person coughs or sneezes in another's face. Neither does he spit on the floor or the sidewalk, nor drink from another's cup, nor allow others to drink from his cup or to use his spoon or his handkerchief or other article of personal use. No well-bred person eats with soiled hands or handles food for himself or others without washing.

Tuberculosis once acquired can only be cured by hygienic living, supplemented by the care of a skilled physician. Porch sleeping offers one of the best and simplest methods of treatment. Almost every country house has a porch or veranda which may be utilized for this purpose. If there is no porch, a shack or tent in the yard serves the same purpose. Outdoor sleeping is as useful to the nervous, anæmic child and to the overworked, sleepless adult as it is to the victim of tuberculosis. Cold weather seems to be more favorable than warm for outdoor treatment, *provided the patient is well protected from the wind and warmly clothed.*

TYPHOID FEVER

Typhoid fever, like tuberculosis, is an infectious rather than a contagious disease. Both depend on a specific germ which comes from the sick and from no other source. Neither disease is dangerous to an experienced nurse, but the utmost care is needed to insure the destruction of all infectious material. All discharges

from those ill with either of these diseases should be burned or disinfected. Body linen and bed linen must be put into a disinfecting solution before washing, to protect the laundress. All dishes used in the sick room should be carefully washed and rinsed in boiling water.

Neither tuberculous sputum nor typhoid stools should be emptied into the privy or water closet until thoroughly disinfected. Sputum is best disposed of by burning. Typhoid stools should be covered with chloride of lime or other disinfectant (not bi-chloride of mercury, which coagulates albumen and thus protects the germ) and allowed to stand for two hours before emptying.

Those who are in especial danger from typhoid fever, as soldiers, nurses and travelers, can be protected by inoculation with a vaccine prepared from typhoid bacilli. The procedure is practically without risk, and immunity is secured for a period of at least a year and probably longer. It is very doubtful whether it is advisable to resort to inoculation under ordinary circumstances and it certainly should not be used as a substitute for sanitary precautions.

Any room which has been used as a sick room should be thoroughly cleaned before it is again occupied. If the disease is communicable the room should first be disinfected under the direction of the physician. After all is in order again it is best to open wide the windows for several days to sun and air.

It is not dangerous to "take the breath" of a person sick with typhoid fever or tuberculosis provided there is no "droplet" infection by means of particles of sputum expelled with the breath; but it is dangerous to touch the hands to food or to the mouth after contact with such a patient, his bed linen or any discharges from his body.

To disinfect the hands after caring for the sick, wash first in warm water with soap. Then immerse the hands for three minutes in a deep basin filled with a solution of lysol, carbolic acid or other disinfectant. Since foreign matter under and about the nails is difficult to remove, it is a good plan to fill these spaces with soap before beginning any especially dangerous task.

Surgeons begin the cleansing of the hands by the use of green soap. This is a liquid soap much like the old-fashioned soft soap

which may still be found in a few farm kitchens. Homemade soft soap is a better cleansing agent than the soap powders and other commercial products in common use and it is no harder on the hands if allowed to age before using.

The popular fear of "germs" founded on incomplete knowledge has led to the careless use of powerful poisons and has caused many accidents. Carbolic acid and bichloride of mercury should be distinctly labeled and kept under lock and key. They have no place on the kitchen sink or the pantry shelf.

Vinegar is an excellent disinfectant for ordinary occasions. It is cheap, convenient, has no disagreeable odor and prevents chapping of the hands. Alcohol is the best disinfectant for clinical thermometers, needles, scissors and other small articles.

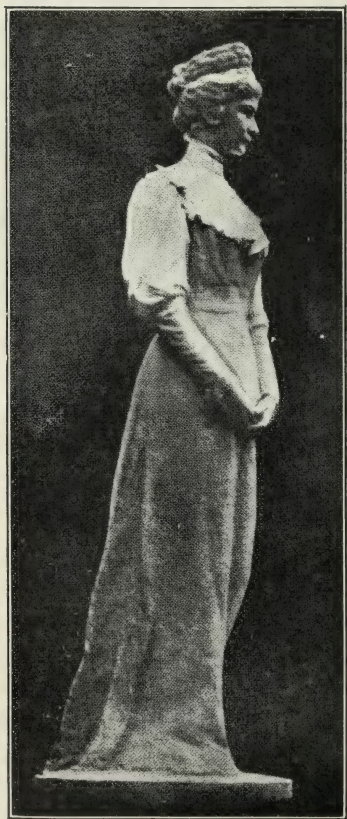


FIG. 299.—EMPERESS ELIZABETH OF AUSTRIA-HUNGARY.

Salt, soda, borax or the three combined should be used for the throat and mouth unless more powerful remedies are prescribed by the physician. Peroxide of hydrogen is of great value in the presence of pus, but may do harm if carelessly or ignorantly used.

Most communicable diseases, perhaps all of them, may be conveyed in milk which is handled by the sick or by their attendants. Epidemics in cities have frequently been traced to farms supplying milk.

POSTURE

Increasing attention is being given by physicians to the influence of posture on health. It is not only that round shoulders cause a small chest and diminished breathing space, but every organ in the body is more or less influenced by the poise of the

body in walking, standing and sitting. The heart, lungs, liver, stomach, intestines, are all dependent for support and free circulation upon correct posture.



FIG. 300.—FASHION-ABLE POSE. WINTER OF 1913-14.

The organs of reproduction in women are especially sensitive to disturbances of balance resulting from incorrect standing and sitting. As an extreme example of how not to do it, see the current fashion plates (winter and spring 1913-14).

All the muscles of the body are relaxed; the abdomen protrudes; the shoulders droop; the head “wabbles” and there is not a single muscle ready for instant action.

Contrast this picture with the modern peasant woman pictured by Jules Breton in “The Gleaner.” The statue of the late Empress Elizabeth of Austria-Hungary at Salzburg is an excellent example of a modern woman standing quietly but firmly and gracefully.

Children on the farm are in greater danger of acquiring wrong habits of posture than city children who have physical training in school.

The period of greatest danger is during rapid growth while the slender girl and awkward youth are unaccustomed to their increasing stature.

It is essential that youths and maidens at this age should not be put at work which will increase the tendency to wrong



FIG. 301.—“THE GLEANER.”

postures. The girl should not carry heavy weights nor stoop over a low sink or table. The boy should not ride the hay rake all day in the sun because it is an easy task. He might better do a little pitching, which will give full play to his muscles and fill his lungs with air. Intelligent physical training will remedy faults already acquired.

Plenty of mineral salts and proteids in the diet of growing children are essential to good development.

Corset makers declare with every new style that it conforms absolutely to the lines of the figure, giving needed support without harmful pressure. If this were true the fashion in corsets would never change.

The three pictures give three styles of corsets worn in comparatively recent years. It is plain that if each corset fitted its wearer, women have been undergoing a wonderful physical transformation.



FIG. 302.—THE CORSET.

CLOTHING

The temperature of the human body in health varies but slightly. Man owes his ability to winter in arctic regions and

summer at the equator to a nicely balanced mechanism by which radiation and evaporation from the skin are controlled. By a similar process the heat generated during exertion is dissipated by the increased blood supply of the skin and by the activity of the sweat glands which pour forth moisture to be rapidly evaporated.

A "muggy" day is uncomfortable because the temperature is high and the atmosphere is charged with moisture which makes evaporation and radiation from the skin slow. A higher temperature with a brisk wind or dry air might be perfectly comfortable because the skin would be competent to regulate the temperature of the body under such conditions.

A room may be intolerably hot with the windows closed and quite cool on admitting a breeze, though the temperature has not changed. In the one case a layer of saturated air encircles the body, preventing evaporation, while in the other case evaporation is rapid. The same condition may be caused by enveloping the body in materials which do not admit sufficient air to allow the skin to act. The feet encased in leather are often cold and moist when the shoes are removed. A "chest protector" of chamois skin endangers health by keeping the skin of the chest constantly bathed in perspiration. Closely woven garments next the skin are not so warm as those of looser texture for the same reason, and a child may be injured by wearing flannels which have shrunk by washing until they are almost impervious to air.

Men working in the hay field find that shirts of wool are more comfortable than those of cotton, while women in the kitchen would find the same material unbearable. In the one case the garment is loose and unconfined and the man is working in a breeze. In the other case the undergarments are pressed to the body by a corset of closely woven material.

The man perspires freely and his wool garment rapidly absorbs the moisture, which is dried by the wind in which he works. The woman perspires freely and the moisture is retained next her skin.

Wool is the most suitable material for underwear in cold weather, but it should be of light weight and carefully washed.

BATHS AND BATHING

The daily bath is a matter of course for the American baby, but older children and adults are prone to neglect it. It is difficult to understand why mothers should think that the growing boy and girl need less care in this respect than the child in arms.

The bath is not for cleanliness alone. It increases the activity of the glands of the skin, thus helping to maintain their secretion, and it serves to regulate the circulation and hence the heat-controlling mechanism of the body. The latter effect is perhaps the most important. Frail children are usually pale and chilly. The mother hesitates to bathe them lest they should "take cold" and so loses one of her greatest opportunities to improve their physical condition. Such children do not bear tub baths well. Instead, they should have a quick, cold sponging of the neck and chest every morning on rising from bed. This should be followed by a vigorous rub with a harsh towel which will bring the blood to the surface in a rosy glow. The child will be warmer for the bath and ready for breakfast. The improved circulation and freer elimination by the skin protect him from chilling and hence from more colds. As the child grows stronger the bath may be extended until it covers the entire body. Older and stronger children are the better for a "cold tub" every morning, provided the chill of immersion is followed by the glow of reaction.

The annoying eruptions so common on the faces of young people are favorably influenced by daily bathing. Women of mature age with thick muddy complexions and a tendency to "black heads" will find the same measure effective. The "black heads" are simply an accumulation of dirt in the orifices of inactive glands. Pimples are only closed glands which have been infected from the outside. Bathing tends to prevent both by keeping the skin active and increasing elimination.

The mother who must pump the water for the children's baths will hardly be an advocate of the morning tub.

CARE OF THE EARS

Deafness is in nine cases out of ten caused by catarrh of the middle ear. This is usually the result of an extension of a

catarrhal process from the throat through the eustachian tube. The first indication of trouble in the child is earache; in the adult, noises like ringing, throbbing or "rubbing" in the ears. Neither indication should be ignored. Anything beyond the most temporary trouble should be the occasion for consulting a competent aurist. If there is a discharge from the ears the drum has ruptured and only skilled attention will enable perfect repair to take place.

Enlarged tonsils and adenoids cause mouth-breathing, deafness, imperfect enunciation and mental dullness. The trouble is caused by some deviation from health which subjects the child to frequent colds and catarrh. This in turn causes chronic hypertrophy of the tonsils, which press on the orifices of the eustachian tubes and so interfere with the air pressure on the drum of the ear. Deafness which follows acute diseases like measles and scarlet fever can usually be prevented by scrupulous cleanliness of the mouth and throat during the illness. In this case the trouble is caused by infection of the eustachian tube, which extends to the middle ear. The old adage, "An ounce of prevention is better than a pound of cure," applies with unusual force to catarrhal deafness.

TO CLEAN THE MOUTH

The best way to clean the mouth in sickness is to prepare a number of little swabs by wrapping a bit of absorbent cotton about the end of a toothpick. With a handful of these little brushes and a mixture of equal parts of glycerine and lemon juice or some non-poisonous antiseptic, thoroughly scrub the mouth, teeth, lips and tongue. Drop each little brush on a paper after dipping it in the solution and using it once. Burn all the brushes as soon as the operation is finished.

With a clean mouth the patient is more comfortable, will digest his food better and will probably escape deafness. In addition he is less likely to infect other people. For the mother and nurse it is only another application of the old rule that cleanliness is the way to safety.

ORAL HYGIENE

Good teeth depend upon good food and a clean mouth. Good food in this connection means food containing mineral salts in abundance. It should not be soft and pulpy after the permanent

teeth are well grown. The chewing of crusts and hard substances keeps the teeth clean, while coarse foods, as meats, vegetable products and flours containing the whole grain, supply the needed mineral elements.

If children's first teeth are allowed to decay early the permanent set is apt to be uneven and of poor quality. A good dentist will fill cavities in milk teeth without causing the child much pain, while toothache is as hard for a child to bear as for an adult.

The permanent teeth should have the most scrupulous care and every cavity should be promptly filled. After the twenty-first year decay seldom occurs unless pus germs are allowed to collect about the dental margins.

The toothbrush should be used regularly and vigorously but under ordinary conditions strong disinfectants are not needed.

THE NERVOUS CHILD

Some babies seem born to cry, but as a rule a crying baby is either a sick baby or an uncomfortable baby. It is as unnatural for a healthy baby to fret or cry except from hunger as for any other young animal to do so. The trouble often comes from the over-anxiety of the young mother which prompts her to disturb the child to see if it is all right or to lavish her affection upon it.

The father who is away from home all day wants to play with his baby after the evening meal. This play is often so exhausting to the child that it fails to rest at night.

The great nervous center, the brain, must double its weight in the first year of life. It is the most delicately organized of all the body tissues and any interference with its normal development means lessened brain power or lessened nervous control throughout life.

SLEEP

All children should be allowed the full measure of sleep which they require. They should be put to bed early in a well ventilated room and not too warmly covered. After the child is a year old it should sleep until morning without waking for food or water. Many younger children can be trained to the same habit.

Growing boys and girls need more sleep than adults and should

not be disturbed in the morning if they are sleeping soundly. It is essential, however, that they should get up when awake and be ready for the day quickly.

Sufficient sleep is as necessary for the hard working mother as for her child and will often preserve her from a fit of "nerves" which results in nagging, and which in turn may cause a passion of temper on the part of the child.

"Disposition is not something fixed, like the color of our eyes." It is in most cases rather a matter of training and education than of temperament. The constant "give and take" of the children of large families protects them from many a dangerous tendency while it cultivates the spirit of mutual helpfulness which is necessary to right development.

The Massachusetts Society for Mental Hygiene has printed the following excellent rules for the guidance of parents:

"Train your child to healthful habits of sleep in fresh air, giving opportunity for at least nine hours, and for more that before the age of 12.

"Avoid conditions that tend to produce overstrain or precocity. The special business of a young child is to grow and to play with other children.

"Give your child opportunity for a variety of wholesome activities and interests.

"Train your child to work hard in some regular occupation suited to his ability and talents, but to avoid extreme fatigue by alternation of work and rest.

"Train your child to give attention to the present situation and not to worry about the past or the future.

"Train your child to strict obedience in a few important matters and let him alone in regard to other things.

"Protect your child from shocks. Do not frighten him yourself or let other people do so.

"The best method of training is example; and what is good for your child is usually good for you."

Much discomfort is experienced by girls and boys at the age of puberty by the eruptions which are apt to appear on the face at this time. They are usually an indication of wrong diet together with lack of care of the skin and bowels. There is no time in the life of an individual when physical changes are so rapid

and demand so much. The growing body needs enormous quantities of food, with a large proportion of proteids. The appetite craves sweets, which are also necessary but should be wisely supplied. The boy, especially, is careless of his personal appearance and perhaps absorbed or frightened by new desires and sensations.

Parents need to be very wise at this time. The daily bath — cold if possible — followed by quick rubbing; the best of plain food well masticated; plenty of sleep but no lying in bed after waking in the morning; a daily evacuation of the bowels — these are the physical needs. They are comparatively easy to supply. It is more difficult to give the right kind of mental discipline, — to direct wisely the pleasures and occupations of the day.

This is the time when manual training in school is of greatest value. The work bench, the garden, lessons in cooking and sewing — all help to pass the difficult period, and they should be supplemented by opportunity for practical application at home.

Games of skill, boating, tramping and outdoor sports in general should be utilized to keep the growing body well exercised, and to sleep readily as soon as early bed time approaches.

Parents should be very careful at this time to keep both youth and maiden happy and to know their associates. It is the time for early love affairs and sometimes fateful mistakes. This danger may be minimized or increased by the books and music which are at hand.

If sensible teaching of sex hygiene has not been given before this time it must be done now. All good mothers through all times have taught the essentials of clean living to their children, but they have neglected to base these teachings on a knowledge of the physiology and functions of the human body.

The growing boy needs this knowledge for his own protection every day of his life. The girl needs it occasionally for the present, but more often for the future when she shall assume the obligations and responsibilities of married life. Why should parents hesitate to give information which may be needed at any time and which will surely be needed at some undetermined time? It is usually because they magnify the difficulties of the task and feel themselves incompetent. In most cases it is sufficient to give truthful answers to the questions which children ask concerning the origin of life and other perplexing things.

Occasionally the child is secretive or timid, and the danger imminent, in which case the parent must take the initiative. It is not desirable to arouse interest in the problems of sex; the effort should be to give only the information which is needed to protect the child and to satisfy his curiosity.

Such instruction, wisely given, will teach children to live so as to become strong men and women, capable of transmitting strength and character to the next generation. It will teach the care and protection of the organs of reproduction. It will teach something of the laws of heredity, and, most important of all, it will teach growing children and youth those things which will protect them from the dangers of immoral living.

There are many books written for the instruction of children in these subjects, but few of them should be put into the hands of a child.

"Some Information for Mother," by John Palmer Gavit, in *The Survey*, March 7, 1914, is worth reading in this connection.

THE NEED OF RECREATION

The story of woman's work on the farms of New York State has never been told. There is no material at hand for computing the average number of hours which the housewife puts into a day's work nor how many kinds of work she must do during that day. We do not know how great is the executive ability of the woman who tends the baby, cares for the older children, cooks, sews, washes, irons and does all the other things which make up the day's labor. We do not know the number of steps she takes nor how many of these might be saved by scientific management. We do not know how much the woman's efficiency might be increased by supplying her with suitable appliances for her work. It has never been tried, and knowledge can come only with experience.

Modern methods in the factory and the mill have demonstrated that long hours are wasteful of human life and of commodities. They prove that the best work in the day is that of the morning hours while the workman is fresh. Slow work, poor work, spoiled work, is done late in the day when the human machine is clogged with the toxins or fatigue.

The eight hour day is being adopted in many industries, and in almost every case the output of labor is greater than with longer hours. Factory employers know that long hours and heavy toil are most harmful to the weakest workmen, women

and children, and students of human history know that the nation which is wasteful of its women and children soon perishes.



FIG. 303.—AN AFTERNOON OFF.
(Reproduced by courtesy of the Woman's Magazine.)

The woman on the farm has no half holiday on Saturday. She has no two weeks with pay during the hot months. In many cases she takes no vacation until forced to do so by sickness, but the woods and the streams and the fields are all about her. The city boarder finds flowers in the field and by the roadside which the farm woman has never seen. She enjoys the sunset and the view

which her hostess is too busy to look at. An hour in the woods may be worth more than one over the workbasket.

“On either side the river lie
Long fields of barley and of rye,
That clothe the wood and meet the sky;
And thro’ the fields the road runs by
To many-towered Camelot.”

—TENNYSON.

The woman on the farm should be able to see beyond the horizon of today and to realize that her responsibility to herself and her family will not be met until she learns to preserve her youth, her strength and her capacity for enjoyment.

These things are her assets in life, and she has no right to barter them for material things. They belong to the husband and the children, as well as to herself, and it is hers to preserve their inheritance for them.

THE POWER OF PROPER DIET AND GOOD COOKING

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Scientists tell us that if, when we were babies, we had all been fed in accordance with Nature's laws, given only such food as Nature had prepared us to make use of, and then, gradually, as our digestive powers developed, had been trained to eat a balanced diet, we should now be able to digest anything we chose to eat, without discomfort. How many of us are able to do that? How many of us never fall below our best work through languor, headache, or what the colored people call "misery"? And how many of us can truthfully say that some of our aches and pains may not be traced back to the mistaken kindness of our fathers and mothers, who thought that because we were old enough to sit at the table in our high chairs, that therefore we were old enough to receive "tastes" from the family table? Most of us can cite this or that food as "not liking us." Most of us can cite more than a few foods that we have never learned to like. Between the two, our dietaries are far more restricted than they ought to be. We may be too old, or too "set" to adopt new ways. We may agree with the man whom Ellen H. Richards quotes as saying: "I don't want to eat what's good for me; I'd ruther eat what I'd ruther!" But we can save our children much needless suffering if we start them right on their digestive careers.

CHILDREN'S DIET

Many will remember the game of "truth" that we used to play as children. Every member of the company was pledged to answer truthfully whatever questions the others might ask, and many interesting revelations were the result. Suppose that we were playing the game now, and were asked what we most desired for our children? Should we not be agreed in wishing them to be strong, beautiful, happy, intelligent, and of some use

in the world? The game ended when we had expressed our wishes, but in the game of life we have it in our own hands to make them come true.

If the baby had a convulsion or showed a serious loss in weight whenever we overtax its powers with "just a little taste" of cabbage or onion or doughnut, we should not long continue the practice. But there is no apparent harm done, the baby continues rosy, bright-eyed and full of life; and, if it develops fretfulness, is wakeful at night, or loses its appetite, we say that it is the teething, or has taken cold, or that the hot weather is affecting it. All these things may be true, but the root trouble lies in the fact that we have given the baby slow poison.

"But", says someone, "the poor little thing cries for it. I don't think we ought to let it see things it can't have!" The poor little thing will be crying for things all its life, and there will always be some that it can't have; why, then, shouldn't the baby's training in self-control start with the appetite, since that will always be one of the chief places to exercise it? Again we hear the theory: "I believe that the nervous strain to the baby in denying it a sip of coffee does it more harm than the coffee would do!" The nervous strain of a single "No" is short-lived, but the nervous strain of a useless stimulant develops the child into an irritable, quarrelsome playmate, a trial to himself and others, who may even gain the undeserved reputation of being "a bad child". Dear old Dr. Lavendar, hero of Margaret Deland's "Old Chester Tales," reappears in a recent magazine story as discussing the "Badness of Good People," and says of a certain little black sheep: "Sinful child? There isn't such a thing. You might as well talk about a 'sinful puppy'! Let the doctor put his stomach in order, and tell his mother to stop giving him cake between meals!"

Finally, there is the argument—"But if anyone craves things, isn't it a sign that they are good for him? Isn't the appetite the best guide? After the appetite has been trained to demand a normal ration, it then becomes our best guide. But the baby's untrained appetite would suck soap or paint, or even bichloride tablets with equal cheerfulness, yet we do not feel it needful to



FIG. 304.—HOW SHALL WE FEED THEM?

give him those. Then why should we feed him in accordance with the demands of a perverted appetite which has been taught to crave pickles, cheese and pastry before the child's teeth are fairly through?

It is no more reasonable to expect the baby's digestion to take care of food that is beyond its powers than to expect the back of a new-born baby to support it in an upright position, or its feet to carry it about. Nature develops the child's ability to digest food as gradually and carefully as she develops its other faculties. Not until the teeth appear can the child make use of foods that need to be chewed, and not until the digestive juices are formed that act on the different foods can these foods do the child anything but harm. The use of starchy foods, such as cereals, before the child is eight or nine months old will injure the digestive tract, because the digestive juice that acts on starchy food is not developed until that time. So, little by little, Nature prepares the child to digest stronger and more varied food. It is as important to add them one by one to the diet when the proper time has come, as it was to withhold them before. We may go to the extreme of not giving the child's digestive organs the exercise which they need as much as do any other organs in the body. I know a mother, who, in her fear lest harm should come to her only boy, restricted his diet until he was twelve years old, to milk and molasses cookies. We know that milk comes near to being a perfect food, and that molasses cookies are good in their place; but the boy who never learned to eat anything else, never strengthened his digestive organs by use. When he began to visit in other homes, and eat at other people's tables, he had not gained the ability to relish or digest a mixed diet, and suffered all his life from digestive troubles. You say, "He could not have been a normal boy or he never would have submitted to such a course," and that is true; but it is also true that he never became even so nearly normal a boy as he might have been if his mother had been wise as well as careful.

Like any other young animal, the child must not be allowed to stop growing for a single day. The rate at which it uses up its

daily store of energy is sufficient proof of its need of the energy-making foods which we call carbohydrates. To repair waste and promote growth, the child also needs building material in the shape of protein, iron, lime and phosphorous as they occur in our foods. It needs a sufficient quantity of base-forming foods such as fruits, vegetables, and milk, to balance the acid-forming foods like meat, cereals, and eggs. If there is an excess of acid-forming foods, waste matter will accumulate in the body, and good health be impossible. Stimulants and aids to digestion are important in the child's diet, *not* in the form of coffee and tea, but of fruits and vegetables. Last, but not least, the child needs water. This is as essential internally as externally. There must be intervals of rest for the stomach. Even the heart pauses for rest between beats, but we sometimes treat the stomach, especially in little children, as if it was capable of a continuous performance. The frequent meals required by the young child must nevertheless be kept distinct, not allowed to drift into one another, and must be at regular hours.

The ounce of prevention practiced in saving the child's digestive powers from "child labor" and abuse, will save the adult many a pound of cure. If throughout childhood we avoid such things as pastry, rich cake, highly seasoned food, coffee and tea, fried food and more than a limited amount of candy, we shall as adults be able to follow the cheery advice of Dr. Woods Hutchinson to "eat hearty, work hearty, and play hearty" without fear of consequences. A brief set of rules for reference regarding the diet at different periods in the child's development will save us from costly experiments at the child's expense. Among many such is a brief and clearly written pamphlet by Edith Greer, entitled, "What Children Should Eat," which every mother will find helpful.

DIET FOR SCHOOL CHILDREN

It is important to notice that the rules do not end with babyhood, but consider the needs of the growing boy and girl up to sixteen years. The time in the child's life when, with the exception of babyhood, the greatest watchfulness is necessary, is

when the school age is reached. When the child is suddenly confined indoors for the greater part of each day, made to change from constant muscular exercise into as complete inactivity as he can achieve, to use for close work — too often in a poor light — the eyes which have been accustomed to restful stretches of green fields, and to breathe overheated and poisoned air into lungs



FIG. 305.—“YOUNG STOCK.”

used to filling themselves in the great out-of-doors — when all these changes come, there often comes with them a flagging of the appetite and an enfeebled digestion. All this at a time when growth is rapid and development ought not to be stunted. It matters very greatly, therefore, whether the child has a nourishing, digestible, unhurried breakfast before starting out for school, and whether his noonday lunch is of a kind that will help, not hinder him in his afternoon work.

Ideally — in the cold weather at least — the lunch should begin with a hot liquid, such as soup or broth, cocoa (made with milk rather than water, and only a small amount of cocoa), or hot milk. This starts digestion and therefore makes the rest of

the lunch of greater use. In many schools teachers are realizing that the simple equipment necessary for the preparation of such dishes is an investment that brings big returns in the quality of work done by the children in afternoon school. Failing the hot liquid, milk is a most desirable part of the school lunch if it can be kept fresh and sweet. Sandwiches should not be limited to those made with meat and white bread. If meat is used, it is always well to run it through the food-chopper. School lunches are eaten hurriedly, and meat if left in slices is not more than half chewed. As a change from meat filling, hard-cooked eggs, sliced or chopped, may be used in sandwiches, or peanut butter, or mixtures like cream cheese with chopped dates, jelly with nuts, or jam. It is also desirable to change from white bread to graham or whole wheat bread frequently, not because these furnish more nourishment than white bread, but because they contain more mineral matter, and because they furnish variety. Do not use pie for the school lunch, but substitute some juicy fruit. Instead of a doughnut, put in a piece of simple cake or a cookie. Custard baked in an aluminum cup is palatable, attractive, and nutritious, and the aluminum cup is light to carry and unbreakable. A tin lunch box, waxed paper, and paper napkins insure a well-packed, appetizing lunch, in which each food tastes only of itself instead of borrowing flavors from everything else as may sometimes happen in a pasteboard box. If the young student is a girl who prefers to carry her lunch in a pretty basket instead of a tin box, there need be no fear that the basket may not be kept just as sanitary as the box. It will do the basket no harm, but rather prolong its usefulness, to clean it by soaking in hot water as often as necessary.

Allowance must be made in the child's diet, as the in the diet of the adult, for individual needs and taste. There is more than a little truth in the statement that "one man's meat is another man's poison." But we must be very sure whether the child's distaste for a certain article of food is caused by a real inability, by mere notionalism, or by unfamiliarity. The condition of actual inability may be the direct result of our impatience with Nature's slow processes. If we have been premature in feeding an infant

whole milk, for instance, there may be an injury to the digestive tract which will weaken digestion in general, and the power to digest milk in particular. In such a case it would be harmful to force a child's inclination. But the many cases where a child is merely notional can be dealt with by serving the dish in a new and attractive way, or in combinations known to be relished, as when we let the despised milk masquerade as a junket or a custard. The distaste which is merely the result of unfamiliarity can be gradually overcome by requiring the child to eat at least a tiny portion of whatever is set before it.

Here is one of the differences between our attitude in the matter of feeding animals and feeding humans. Believing that a certain feed is desirable for his stock, the skillful feeder sets himself to accustoming them to the new flavor, even if at the first attempt its palatability to the animal is doubtful. How often we hear the question, "Do the animals like this feed?" and the answer, "Yes, after they get used to it." But the feeder of humans, although struggling all the time for variety in her bill of fare, when asked: "Don't you use this or that article of diet?" is apt to say: "I only tried it once; my family wouldn't eat it!" It may be that we shall have to learn to be more persistent in this matter if the computing of balanced and economical rations is to be as practical for the human family as it is for our stock.

THE BALANCED RATION

It is certain that in going about the country one sees a much greater number of tables upon which a well-balanced meal is set out, than one sees families making a balanced meal from such tables. People starve in the midst of plenty when they persist in leaving out of their diet the things which it is most important to include. What do we mean by a balanced diet? Why does it matter, as long as our stomachs are filled and our hunger forgotten, how the result was brought about? It makes the difference between being merely *filled* and being *fed*. A man who has just eaten and begun to digest a well-planned, well-balanced, well-cooked and well-served meal has an entirely different conception of life from him whose meal may have been just as plentiful, just as

well cooked and served, but in which the proper balance was not maintained. Our bodies are made up of certain constituents, which, as they occur in our foods, we speak of as proteins, starches, sugars, fats, mineral matter (like iron, lime and phosphorous) and water. To keep our bodies in good running order, all these constituents must be provided in their proper proportion.

It is a case similar to that of the mother who undertakes to repair a great gaping hole in her small son's blue serge trousers. If she puts on a patch of blue serge, the result is good; she has provided the elements of which the trousers were originally made. If she puts on a patch of burlap the result is poor; she has *not* provided the elements of which the garment was made. But our body is more than a garment that needs to be kept patched; it is also a machine that must be kept supplied with fuel, must be kept oiled, must be kept unclogged by waste matter, and must — by a free use of all its parts — be kept from rusting. Therefore, in addition to a proper proportion of the food elements mentioned, the diet must furnish bulk, or "roughage," in order that the digestive organs may be given their fair share of the body's exercise. There must also be "succulence" to stimulate digestion, and there must be a liberal use of water.

AMOUNT OF FOOD NEEDED

The amount of food needed must vary, even more than does the kind, according to age, sex, occupation, build, temperament, season, climate and individual requirements. The child, because of its greater activity, and because it is growing, needs more food in proportion to its size than does the adult. Men as a general thing need more food than do women. This is recognized from the business point of view by the places that make it a rule to charge one dollar per week more for boarding a man than a woman. Of course there are men who eat less than the average woman, just as there are women who eat more than the average man, but the general rule holds good. Long, lean persons have a larger food requirement than those of compact build. Nervous people need more generous feeding than those who are of a placid disposition. Those who have learned to adapt their diet to the

season suffer much less from heat and cold than do the people whose bill of fare remains the same the year round. The matter of occupation enters into the specific questions to be taken up later. Certain it is that if we are wise we shall not give the same amount and kind of food to the farmer, the dressmaker and the baby, any more than we shall, if we are wise, provide as hearty a meal on Sunday, the day on which we do the least work, as we provide on the other days. We do want to mark Sunday as a special day by a specially attractive meal, but it may at the same time be one that is easy to prepare and does not overtax digestion. Often this is forgotten, with the result that we are too drowsy and headachy to enjoy our Sunday afternoons and are disposed to blame attendance at church when our condition is due to over-indulgence of our appetites.

ERRORS IN BALANCING THE DIET

Our most common errors in balancing the human ration are:

1. The eating of too much protein, especially meat. Professor Atwater tells us that one-quarter pound of available protein per day is enough for a man who does fairly hard work, like a carpenter or mason, and that one-fifth pound of available protein per day is enough for a man doing office work. The protein in the day's ration should not be more than one-fifth as much as the fats and carbohydrates. The greater amount of energy needed for hard muscular work like farm work should not be bought in the shape of more protein, but in the form of the foods especially adapted to furnishing energy; that is, the carbohydrates and, in their proper proportion, the fats. The reason for this is because the first cost is less and because the body can store up for the future what it does not need to use at once. In the case of protein, if more is eaten than is needed for the body's immediate use, Nature's law is that it must be gotten rid of as waste matter. Hence the body is overworked in disposing of something which we have overworked our pocketbook to buy.

2. The use of too much fat. Fat is twice as powerful a fuel as are starches and sugars. Keeping this in mind, we should use only as much fat in our daily ration as will equal the amount of

energy obtained from starches and sugars (carbohydrates). An over-liberal use of fat causes digestive disturbance and demands an antidote in the shape of liberal amounts of fruit.

3. Depriving ourselves of sufficient mineral matter and succulence in the form of fruits and vegetables.

4. Not using enough water.

5. Not choosing our diet according to our occupation.

SPECIAL QUESTIONS CONCERNING DIET

We may generalize for a long time on the subject of diet without touching on the problems that are vital to each one of us. A speaker who had been discussing the subject paused to ask her hearers whether they had any suggestions, and received the following reply: "You have been riding your hobby very interestingly, and I trust you have had a pleasant ride, but you haven't yet told us the things we really need most to learn. What we want to know is this: Can we give our husbands baked beans three times a day and keep them well?"

So the sooner we get down to "baked beans"; that is, to the questions which we ask ourselves and which others ask us, the sooner shall we reduce the problem of feeding to the terms of everyday life.

Among the questions brought up at meetings, one of the first is always this, "What do you think of buckwheat cakes and sausage for breakfast?" And always the question comes in a half-defiant tone, as if the questioner expected to be told that unless he immediately changed his breakfast diet to oatmeal gruel and hot water, there was little hope for him. But that is not the answer at all. As a matter of fact, the question is best answered by several others: What do you expect to do with the buckwheat cakes and sausage? What kind of work are you stoking your human engine for? An engine does not need so much fuel if it is running light on a level, as it does to draw a heavy train of cars uphill. Is it the time of year when your body needs fuel, not only for work, but to help it fight the cold? Are the forces of your body in good order to get their money's worth out of hearty food, to "eat hearty, work hearty, play hearty?"

If the man is going to do hard muscular work, using up his fuel freely, if his work is going to be out of doors so that he will be filling his lungs with fresh air (and every good housewife knows how impossible it is to burn up fuel, no matter how good, unless we have a good draught); if all this is the case, then it would be nothing short of cruelty to prescribe for that man a light breakfast such as would be quickly digested and forgotten, leaving him a hollow aching void long before dinner time. For his purpose, the generous meal of hearty food is exactly what he ought to have, especially if the cakes are cooked well through, so that digestion does not have to wrestle with raw starch. But there is one objection to the meal as it stands, which, if it were a case of animal feeding, no man would overlook. The protest would come immediately: "Here, you haven't provided any succulence!" Curiously, we see the need at once in feeding animals, but ignore it when the ration is only for humans. If the meal is balanced up with any juicy fruit that may be available, it becomes perfectly suitable for the man at outdoor muscular work.

If the housewife, however, should eat heartily of the same hearty food, with the idea of spending her morning in sweeping, with all the windows wide open (thus providing for herself the same conditions of muscular activity and fresh air); and if, unexpectedly, a neighbor should come in and insist on doing the sweeping in the housewife's place in order that she might finish her sewing; the housewife would find, after sitting still in a closed room all morning, that much of the good fuel with which she had stoked her engine had been wasted, and that she had no desire for dinner. Had she known it in time, she could have prepared herself for the change in program by eating sparingly of the cakes and sausage and liberally of the fruit provided.

Or suppose that the school child, living near enough to the school to come home for dinner, makes a meal of corned beef and cabbage, pie and doughnut, and returns to school without further air and exercise. How will that kind of a meal affect him? It will take hardly more than half an hour after school is called, for a

quarrel to begin between that child's digestive organs and his brain. The digestive organs will plead strongly for the right of way in order to dispose of the heavy duty which it has been set to do. The brain will plead rather half-heartedly for the right of way in order to wrestle with problems of its own. As it is everywhere, the battle is to the strong. The stomach wins out, the brain retires, and the child begins to yawn. It continues to yawn, and soon half a dozen children are yawning with it. Now when half a dozen children are yawning in afternoon school, it becomes at once a very serious question whether the children, the teacher, or the tax-payers are getting their money's worth out of that afternoon session. And unless the teacher has had a very inspiring lunch herself, she will begin to feel discouraged, and wonder whether she isn't a failure, and whether she hadn't better resign in favor of someone who can kindle a spark of interest in that school. Or perhaps the school trustee comes in, and, seeing the state of things, either resolves to have a more competent teacher next term, or reflects on the stupidity of the children who are doing most of the yawning. His conclusions are false in either case. A yawning school doesn't necessarily mean an incompetent teacher, nor does it mean stupid children. It is much more likely to mean, if not lack of fresh air, overworked sets of digestion among the children.

In a certain class in physiology, which, unfortunately for the professor, came every day immediately after lunch, there were among its sixty members a dozen girls who were there as they themselves said quite frankly, "to waste a year". They had no love for the professor, and took great joy in demoralizing his classes. Using their knowledge of diet, they proceeded every noon to eat the things that were most sure to give them indigestion and make them drowsy, with the result that without further effort on their part, they were able to yawn in the professor's face throughout the hour. Out of the sixty who started in that class, only thirty-five came to examination at the end of the year, and they came exhausted from their efforts, during the whole year, to lift the class from the dead level to which the twelve yawners had dragged it.

There is a time when the knowledge that we can coax our energies away from the brain and put them harmlessly at work elsewhere, is of great value. When we have gone to bed "keyed up"—when the cares of the day, refusing to leave us, seem to sit in a row on the foot-end of our beds and make faces at us—when our brains are throbbing and hot, and our hands and feet like ice—when sleep seems miles away, and tomorrow morning cruelly near—if at a time like that, we get up and slowly drink a glass of hot milk, or hot malted milk, or even hot water, we shall find that when we return to bed the blood will begin to leave the brain, the hands and feet will grow warm, and, granted that we have fresh air to breathe and that we "let go" of our muscles, we shall shortly find ourselves drifting into unconsciousness. It is the condition we want to achieve when our duty is to get rested for the next day, but it is not the result we desire in afternoon school.

IS IT HARMFUL TO DRINK WATER WITH MEALS?

If the child comes rushing in from school with determination written large all over him to take ten minutes for his dinner and the remainder of his recess for play, and in order to accomplish this he takes huge mouthfuls of food and washes them down with huge mouthfuls of water, then drinking water with meals is decidedly bad, just as washing them down with any liquid is bad. If the teeth are allowed to shirk their work of preparing food for digestion and the digestive juice which ought to be the first to act upon the food, the saliva, is allowed to go idle, we are encouraging a sympathetic strike all along the line. But if water is not taken until the food has been well chewed and swallowed, then drinking water with meals can do no harm. Fortunately for us, that is an exploded theory, like the one about the evil effects of night air. And if our families show a willingness to drink water with their meals, and a reluctance to drink it at other times, by all means let us give it to them with their meals. Two glasses at each meal will provide us with two-thirds of the amount needed daily by a normal person.

If water were exploited as a patent medicine, we should read on the wrapper that it is absolutely essential to health;

that it enters into the make-up of the tissues; that it is the body's cleansing agent; and that it is needed to carry foodstuffs from one part of the body to another. Because it is easy to get and cheap, and because — unless it is very badly polluted — it is tasteless, we overlook the curative and preventive powers of water. People will declare earnestly that they never feel the need of a drink of water and are perfectly well without it, while all the time they would be as much better for it as dried fruit is better for having its normal moisture restored. If we abuse our bodies to the point of needing to take treatment at a sanitarium, what is the foundation upon which our cure is built? A liberal use of water, internally and externally, a simpler diet than we should have thought sufficient at home, and large doses of fresh air night and day. If water is so powerful as a cure, why do we not make freer use of it as a preventive? It is so much easier and cheaper to *keep* well than to *get* well!

Many people say that they can not learn to drink water and that it distresses them, especially before breakfast. Perhaps they are among those who find cold water unpleasant but can take it hot without discomfort. Some people find that the addition of a small amount of lemon juice to the water makes it easier for them to take, while others add a pinch of salt with the result that they feel no unpleasant effects. It may be difficult to change over night from the no-water diet to one which provides our normal eight glasses per day, but if once we admit its value in keeping us well and keeping us young, we shall consider it worth while to accustom ourselves to its use. Further than that, we shall be as particular regarding the quality of water we drink as though it were any other remedy.

ARE COFFEE AND TEA HARMFUL?

In this connection it may be well to emphasize that the writer is discussing the diet of people in normal health. Prescribing diet for disease is the province of the family physician. For the adult in normal health, untroubled by nervousness or sleeplessness, the moderate use of coffee and tea rightly prepared is not so harmful as some would have us think. We can not lay too much stress

on the fact that this is true merely for the adult, and *not* for the growing child, as has been already pointed out in speaking of the child's diet. When one sees little children, six years old and even younger, taking their two cups of coffee at a grange supper, one wonders whether the lowered vitality of those children will ever be traced back to the desire on the part of their parents to make them happy by giving them whatever they wanted. The manner of preparing both coffee and tea makes a great difference in its effect. There are homes where tea is not thought to be tea until, as one woman expressed it, it has been "simpering" on the back of the stove for some time. If allowed to "simper," or even boil, the tannin contained in tea becomes soluble. Those of us who have ever gargled with tannin solution will remember how it puckered our throats, and will find it easy to understand that it "puckers" or coagulates our protein foods and makes them hard to digest.

In the making of coffee the mildest beverage is produced by means of the French drip coffee-pot, because in that process the boiling water is poured just once, very slowly, over the coffee grounds. The many different percolators on the market make excellent coffee if care is taken not to let the percolating continue too long, for in this process also the finished coffee is separate from the grounds. In making boiled coffee, the flavor of which some people prefer to any other, the careful housewife knows that five minutes' boiling is the point beyond which flavor is sacrificed to strength, and the bad effects of the coffee, such as quickening the heart action and over-stimulating the nerves, are increased. If the family's appearance at the breakfast table is delayed beyond ten minutes after the coffee is ready, it is wise to pour it off from the grounds, and, in keeping the liquid hot, be sure that it is kept below the boiling point.

After every precaution in preparing coffee and tea have been taken, we must still ask ourselves whether we are by any chance among the people who lean on coffee and tea as though they were crutches; who feel that the day has not rightly begun until they have had their cup of coffee; who are nervous and sleepless; or who, after a morning in the kitchen, come to dinner with the plea, "I have been working so long in the odor of food that I do not care whether I eat or not,—give me a cup of tea and call

it square!" If we are so exhausted that a cup of tea is the only thing that appeals to us, then what we most need before even trying to eat, is five minutes' absolute rest. That seems well-nigh an impossible prescription to the busy housewife, whose family depends for their comfort on her presence at the table. But if she has learned the art of relaxing, she can get a certain amount of rest as she sits in her chair. When she does attempt to eat, let her be sure, even if the cup of tea forms a part of the meal, that in addition she gets a sufficient amount of nourishing, easily digested food to restore energy and repair wastes, instead of spurring herself up to the point of "working on her nerves" by means of a temporary stimulant, and having to pay the inevitable penalty.

The effect of both coffee and tea is more powerful if they are taken on an empty stomach, hence the danger of allowing them to take the place of food. One hears of extreme cases where the resulting symptoms greatly resembled those of *délirium tremens*. Such cases are usually the result of working beyond one's strength on insufficient food and without intervals of rest and recreation. It is a well-known fact that the more tired a woman is, the harder she drives herself, under the impression that her work can not possibly be done by anyone but herself. The attempt to defy Nature by the aid of stimulants generally ends in our having to trust our work to a substitute after all, and to realize too late that the substitute's lack of skill is due to our own mistaken zeal in refusing to accept help sooner.

IS IT HARMFUL TO GIVE CHILDREN CANDY?

Mothers are daily confronted by the question: "Since it is true that sugar forms a necessary part of the diet, especially of the diet of the growing child, and since, as we all know, children are constantly craving candy, why can we not give our children all the candy they want?" In discussing the needs of the body, we found that sugar was but one of many required foods. Therefore if we allow the child to fill itself with sugar alone, it is not being properly fed. If we do not furnish the body with building material, we can not expect normal growth; if we do not give it foods containing iron, we can not expect good red blood; if the appetite has been satisfied on candy, which fails to give the body any

of these things and fails to provide it any lime, we can not expect strong bones nor strong teeth. The eating of much candy makes poor teeth, not so much because it gets into them and causes decay as because it destroys the desire for foods that furnish the material of which teeth are made. Moreover, sugar is likely to ferment in the body and cause indigestion. The child who gets little or no candy, and even little or no sugar on its cereal, is not on that account being deprived of its proper share of sugar, because it is receiving it in the foods in which it naturally occurs,—in milk, fruits and vegetables; and also in jellies, jams and simple desserts. Young children are far better without any candy, and children of any age with only small amounts. There is a great safeguard in never giving candy between meals. If given as a dessert, after the child has had its balanced meal, there will be less temptation to eat candy to excess. It is further important to give children only homemade candy. If mothers always did the buying, this might not be necessary, but more often than not children buy their candy themselves, and being frugal buyers, they look more to quantity than to quality. Among the homemade candies there is further need for selection. The fact of its being made at home does not render fudge in its many varieties a desirable sweet for children. Molasses candies and simple taffies are better because less rich.

HOW TO EAT

The most minute directions on what to eat are powerless unless we have learned the lesson of how to eat. This does not mean that we are to Fletcherize, although Fletcher has done a good thing in calling our attention to the importance of properly chewing our foods. But any set rules for the number of times we shall chew before swallowing can not but center our thoughts on ourselves, and make us incapable of contributing our share toward the good cheer of the meal, and the result will be unfortunate for ourselves and for those with whom we eat. How is it that we manage to survive some of the over-generous Thanksgiving and Christmas dinners of which we partake with no worse penalty than an overpowering drowsiness? Is it not because the spirit of merriment increases our digestive powers beyond any-

thing that would be possible were each one of us to take our laden plate into a corner, and eat with our backs turned toward one another, thinking sad thoughts and dreading possible consequences? Those of us who have reached mature years and experienced trouble can all recall some meal eaten without any consciousness of what composed it because all our energy was centered on trying to swallow that lump in our throats. That meal had better not have been eaten, for our mental distress made any benefit from it impossible. Sensitive children may be made actually ill by being scolded during a meal. Knowing these facts as we all do, is it not important to banish from the table any topics that will sadden or distress or anger? It is good business, to put it on no higher plane, to get all that we are entitled to at a meal, and that "all" includes rest and a comfortable visit as well as the mere eating of food.

Much of the pleasure and benefit of a meal comes from careful preparation and serving. The old saying, "Hunger is the best cook", is no truer than the more modern one, "Mouth-watering is the best dyspepsia tablet". Nobody needs elaborate cooking, but everyone is better for simple food so prepared as to develop its best flavor and highest nutritive value. No one wants fussy garnishing, but to have our food set out in orderly fashion, which really takes no longer than the slap-dash methods which appear so much more swift, adds greatly to the restfulness of a meal. There may be only fifteen minutes for dinner. Even then we shall get more real benefit from eating no more than can be eaten quietly and unhurriedly than from bolting our food in absolute silence, with the idea that we must eat just as much as though time was plentiful, no matter whether we succeed in digesting it or not.

THREE DAYS' DIETARY TO SHOW HOW THE SAME MEALS MAY BE ADAPTED TO DIFFERENT NEEDS

For a family consisting of:

Father — a physician.

Mother — housewife.

Son — 16 years old, at school.

Daughter — 14 years old, at school.

Daughter — 8 years old, at school.

Son — 4 years old.

Baby — 1½ years old.

The father and mother have about the same food requirement. The son of sixteen and the daughter of fourteen could be properly nourished from the same dietary as the parents, but must also have lunches to carry to school. The child of eight carries a slightly different lunch to school, because milk is more important in its diet than in that of the older brother and sister. The child of four needs its meals simplified and supplemented, but can eat many things on the family dietary. The child of a year and a half needs a still simpler dietary, with smaller meals at shorter intervals.

As far as possible the dietary is planned so as to avoid preparing different individual menus.

FIRST DAY

Breakfast

Baked apples; oatmeal; toast; poached eggs; coffee (for father and mother); milk.

The child of four has its apple very carefully skinned and cored.

Baby's Breakfast

Oatmeal; milk.

Between breakfast and the next meal the baby can have a baked apple, strained. It is not quite old enough to combine an acid and milk at the same meal.

10 a. m.

Child of four and child of one and a half each have milk, and the child of four has also a slice of bread and butter.

Lunch for Father and Mother

(Dinner is served at night, because the school children must make up for their light lunch at school.)

Cream of celery soup with toast sticks; scalloped fish, rolls and butter; sliced oranges.

School Lunch for Boy of 16 and Girl of 14

For each: Two white bread and egg sandwiches; two whole wheat bread and cream cheese sandwiches; two molasses cookies; one banana; one orange.

School Lunch for Child of 8

One-half pint of milk; one white bread and egg sandwich; one whole wheat and cream cheese sandwich; one orange.

Lunch for Child of 4

Cream of celery soup; one egg, bread and butter; sliced oranges.

Lunch for Child of One and a Half

One soft cooked egg; one slice of bread, lightly buttered; milk.
(Juice of one orange between this meal and the next.)

3 p. m.

Milk for baby.

Dinner (for Father, Mother and Three Older Children)

Chicken or mutton broth; roast beef; peas; mashed potatoes; cheese and lettuce salad, crackers, lemon jelly.

Supper for Two Youngest Children

Milk, bread and butter, apple sauce for child of four.

SECOND DAY

Breakfast

Stewed prunes; hominy; popovers; omelet; coffee (for father and mother); milk. Child of four has one soft cooked egg instead of omelet and one slice of bread instead of popovers.

Baby's Breakfast

Hominy, milk, one slice bread.

(Stewed prunes, strained, between this meal and the next.)

10 a. m.

Child of four has milk and bread, and baby has milk.

Lunch for Father and Mother

Lamb chops with tomato sauce; creamed potatoes; whole wheat bread and butter; baked custard.

School Lunch for Two Older Children.

For each: Two jelly and nut sandwiches; one stuffed egg; one cream puff; two bread and butter sandwiches; two figs.

School Lunch for Child of 8

One-half pint milk; one jelly and nut sandwich; one bread and butter sandwich; one cream puff; two figs.

Lunch for Child of 4

Lamb chop; creamed potato; whole wheat bread and butter; milk; orange juice.

Lunch for Baby

Lamb chop, scraped; baked potato; milk.

(Juice of an orange to be given to the baby between this meal and next.)

3 p. m.

Milk for baby.

Dinner for Father, Mother and Three Older Children

Beef soup; stuffed veal; browned potatoes; string beans; buttered rolls; fruit salad; cheese crackers; ice cream.

Supper for Two Youngest Children

Milk; bread and butter; baked apple for child of 4.

THIRD DAY

Breakfast

Grapefruit; shredded wheat; graham gems; eggs with cream sauce; coffee (for father and mother); milk.

Breakfast for Child of 4

Orange juice; shredded wheat; poached egg.

Baby's Breakfast

One poached egg; bread and butter.

(Juice of one orange between this meal and the next.)

10 a. m.

Child of four has milk and bread and butter, and baby has milk.

Lunch for Father and Mother

Beef croquettes; brown sauce; fried hominy; fruit salad.

School Lunch for Two Older Children

For each: One cup custard; two brown bread and marmalade sandwiches; one piece of corn bread; two apples.

School Lunch for Child of 8

One-half pint milk; one cup custard; one brown bread and marmalade sandwich; one piece of corn bread; one apple.

Lunch for Child of 4

Scraped beef (raw); baked potato; bread and butter; baked apple.

Lunch for Baby.

Scraped beef (raw); Baked potato; bread and butter.

3 p. m.

Milk for baby.

Dinner for Father, Mother and Three Older Children

Vegetable soup; roast lamb; mint sauce; mashed potato; scalloped cabbage; apple pudding.

Supper for Two Youngest Children

Milk; bread and butter; soft custard.

NOTES ON INVALID COOKERY

One of the first "don'ts" in invalid cookery is, "Don't ask your patients what they would like", and the second is, "Don't ask them whether the meal you are bringing them doesn't look tempting." The appetite of a sick person is such a precarious thing that the mere effort to express appreciation of that very attractive tray may make it turn against the daintiest food we can provide. The tray must be made as attractive as possible even if our patient seems neither to know nor care. Regarding the food served to sick people, we must bear in mind these essentials:

The food must be attractive to look at.

It must be easily digested.

It must be pure.

It must have nutritive value.

Everything connected with the serving of it must be absolutely clean.

The quantity served must not be so great as to turn the patient's inclination against trying to eat. If possible we should learn to gauge the patient's appetite so correctly that there will be no leftovers. If there are, they should *never* be given to anyone else after being in the sick room.

The quality should be of the very best, and in meats especially it is most important that they shall have been kept long enough to be tender, but not long enough to show the slightest taint.

The divisions we make in invalid diet are as follows:

Liquid diet

Semi-liquid diet

Light soft diet

Convalescent diet

Liquid diet consists of such things as water, milk, beef broth, mutton broth, chicken broth.

Semi-liquid diet takes in the gruels, cream or water-toasts, cream soups, eggs, and all the various custard, farina, and tapioca desserts. Special diets may be:

Absolutely without fat

With an excess of fat

Without starch
 Without sugar
 Besides many others

In arranging the tray and setting it before the patient, be sure that the dishes are conveniently placed so that they do not have to be shifted before the patient begins to eat.

In case of being quarantined with a patient, it may be necessary to have a separate equipment for preparing the food. A suggested list of what may be needed is something as follows:

Measuring cup	Egg beater
Tablespoon	Wooden spoon
Teaspoon	Sifter
Knife and fork	Omelet pan
Thermometer	Sauce pan
Small broiler	Small double boiler
Several mixing bowls	Meat press
Meat board	Lemon squeezer
Alcohol or oil stove	Cheese cloth
Plates, cups and saucers	

Preparation of Some of the Foods Included in Liquid and Semi-Liquid Diet

Rice water: $\frac{1}{2}$ tablespoon rice, 1 cup milk-and-water, salt. Put the rice on in cold milk-and-water, boil 30 minutes, and strain.

Toast water: 1 cup toasted bread, 2 cups boiling water, salt. Pour boiling water over brown toast. Strain.

Apple water: 1 large sour apple, 1 cup boiling water, 1 teaspoon sugar. Cut the apple in small pieces with the skin on. Put on in cold water, let it come to a boil, and strain.

Currant water: Mix 2 tablespoons currant juice and 1 cup cold water.

Lemonade: Juice of $\frac{1}{2}$ to 1 lemon, according to size, 1 cup water, 2 tablespoons syrup made by boiling 1 cup of sugar and 1 cup of water for two minutes. (This may be kept on hand in a preserve jar.)

Effervescent lemonade: Make of the same ingredients, but add $\frac{1}{4}$ teaspoon of baking soda just before serving.

Egg lemonade: 1 egg, 2 tablespoons lemon juice, $\frac{1}{4}$ cup water, 1 tablespoon sugar, $\frac{1}{4}$ cup chopped ice. Beat the egg, and pour the lemonade on gradually, beating all the time.

Orangeade: Juice of 1 orange, $\frac{1}{4}$ cup cold water, 2 tablespoons syrup.

White-of-egg drinks: Beat the white of one egg slightly, and add either one-half cup water, or one-half cup milk.

White-of-egg and fruit: White of one egg and the juice of either 1 lemon or 1 orange. Put the ingredients together in a shaker or closely covered preserve jar, and shake till well mixed. Strain.

Gruels (barley flour, rice flour, farina, oatmeal or cracker meal): 1 tablespoon of the flour or meal (2 tablespoons of the cracker meal), $1\frac{1}{4}$ teaspoon salt, $\frac{1}{2}$ cup each of boiling water and milk. Boil and strain.

Beef juice: In preparing beef juice for patients, it is a great advantage to have one of the meat presses mentioned in the list of equipment for invalid cookery, but if it is impossible to get one, a strong metal lemon squeezer can be made to serve. Use the round or neck of beef. For 4 ounces of juice it will take about 1 pound of meat. To extract the juice, have the press hot. Trim off the fat from the meat, broil it for two minutes, just long enough to start the juice, cut into small pieces on a heated plate, and put through the press. This may be served hot or cold, or poured over bread or toast.

Chicken broth: 2 pounds of chicken cut in small pieces (the bones broken into small pieces), and 1 quart cold water. Simmer three or four hours, reducing it to less than a pint. Strain into a jar. When wanted for use, remove the fat and add $\frac{1}{4}$ teaspoon of salt to every cup.

Raw beef sandwiches: Wash or wipe the meat. Scrape, using a dull knife. Spread on thin slices of bread or toast and sprinkle with salt, cover with another slice of bread or toast. Serve cold.

Books that will be found helpful in cooking for invalids are:

"How to Cook for the Sick", H. B. Sachse.

"Invalid Cookery", M. A. Boland.

"How to Cook for the Sick and Convalescent", F. M. Farmer.

"A Cook Book for Nurses", S. C. Hill.

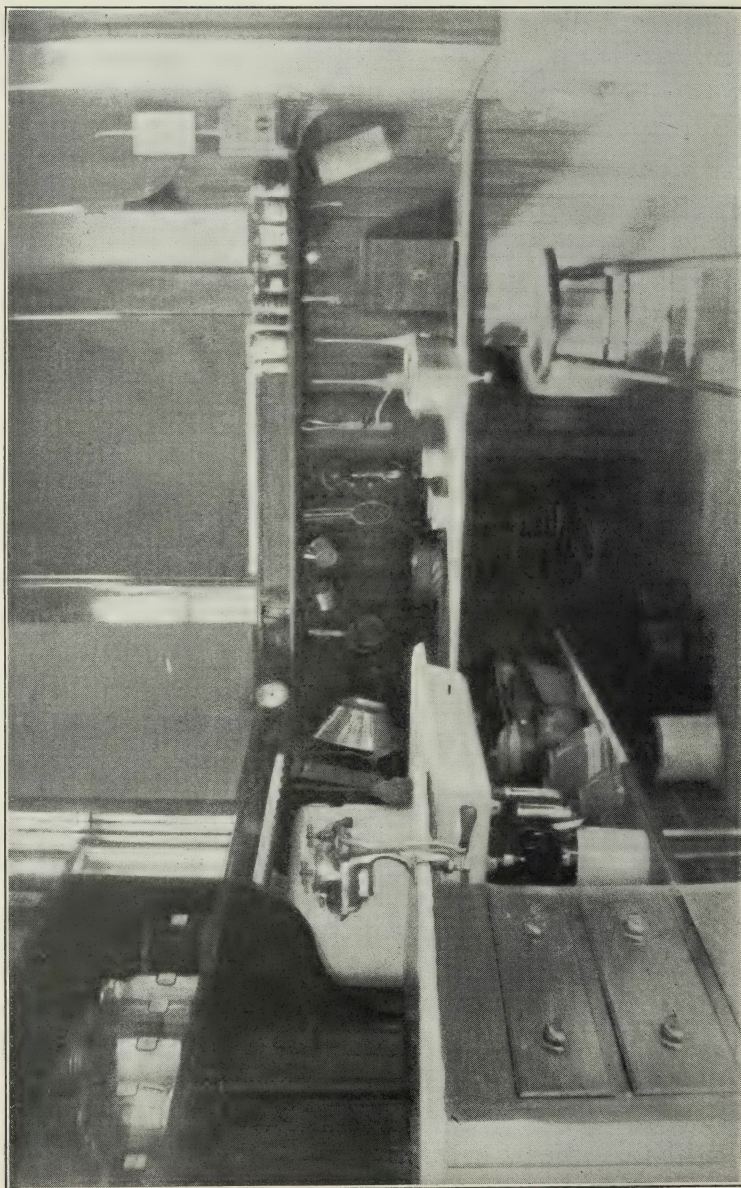


FIG. 306.—KITCHEN 7 FEET X 14 FEET (IDA S. HARRINGTON). SHELVES TAKE THE PLACE OF TABLES TO ECONOMIZE SPACE.

THE BASIS OF GOOD COOKING

There is a certain satisfaction in being able to carry in our heads a large number of different recipes and to quote them accurately on demand, but it is not after all an economical plan to burden our memories with set rules when we may achieve the same results from an understanding of general laws. The result we want to achieve in food preparation is to get out of our foods the highest nutritive value, best quality, greatest quantity and most satisfaction that they are capable of yielding. This, to be sure, means careful buying, careful storing, and good cooking. But good cooking depends less on knowing many separate recipes word for word than on being familiar with the general laws we must observe in cooking such different classes of foods as meats, vegetables, cereals and other starchy foods, sugars, eggs, etc. Equipped with these laws, we shall at once know what treatment any food requires according to the class to which it belongs. Again, in combining different ingredients, as in bread and cake mixtures, if we are familiar with the general laws of proportion on which the success of any recipe depends, we shall find that a few typical recipes will equip us to make numberless variations, if only we take care not to break the law of proportion.

In reviewing briefly the underlying principles which govern the cooking of different groups of food, it is natural to begin with the consideration of meat cookery, since at the present price of meat it is of grave importance that the meat we buy shall be so prepared that the loss of quantity, quality, nutritive value and flavor be kept down to the lowest possible limit.

Meat

In cooking meat we have two different problems because of the presence of two kinds of protein, each of which requires a treatment of its own if such a course were possible. That in the muscle fiber dissolves in cold water, but hardens under high heat. That in the connective tissue which holds the muscle fibers together shrivels and becomes tough under dry heat, softens under slow, moist heat, and dissolves under continued boiling. If we take a piece of round steak, and with a dull knife or a spoon

scrape away all the muscle fiber from the connective tissue, we shall see plainly the difference in the two substances which we are to cook. Suppose we cook both substances in the same way, broiling them over the coals; and as a check on our experiment, broil also a piece of round steak just as it was cut, without separating muscle fiber from connective tissue. The muscle fiber, resembling a finely ground Hamburg steak, will be very tender and juicy if we are careful to have the heat strong enough for the first few moments to make a protective covering over the surface so that the juices can not escape, and if we then reduce the heat and continue cooking only long enough to make the protein partly solid, or coagulate it. A tender piece of meat so prepared will be done, as the saying is, "to a turn," whereas the tenderest cut, cooked beyond this point, will be hard and dry, of poor flavor, and shrunken in size.

The second piece, the connective tissue, will shrivel up, harden and be practically unfit to eat, no matter how carefully we apply the process of broiling. The third piece, composed of muscle fiber, but with much connective tissue, will also be unpleasantly tough, so that for any piece of meat containing much connective tissue, the use of the broiler or the frying pan is out of the question if we want a palatable dish. But this does not by any means condemn such a piece of meat as useless. Since it is evidently the connective tissue that makes the trouble, we must break that up or soften it. If there is only a short time for preparation, and we have one of the less tender cuts of meat to deal with, it will be necessary to break up the connective tissue by running the meat through a meat grinder, chopping it in a bowl, or scoring it with a knife. Take as an example such a dish as veal cutlets, for which we are told we must choose "only the tenderest of veal". Even very tough veal can be used by means of judicious scoring:

Veal steak cooked in milk.—Score the steak with a knife, running the lines of scoring close together, both from side to side and from top to bottom of the piece of meat. Brown the meat on both sides in a small amount of fat in a frying pan, then add enough hot milk to just cover, set well back on the stove, and let it cook very slowly, well covered, for half an hour.

The best treatment for tough meat, however, is by means of long, slow cooking, in one of the many attractive ways made possible to-day by means of the fireless cooker, casserole dishes, "Dutch ovens," etc. If we wish to boil a tough piece of meat, we must take into consideration the effect that different temperatures will have. Putting the meat on in boiling water, so that the high temperature will harden the outside and keep the inner juices from escaping; and after a few minutes reducing the heat below boiling point and cooking the meat for a long time at this low temperature, will give the best result to be obtained from this method. The connective tissue is softened but not dissolved, so that the piece of meat is kept shapely, and its flavor and nutritive value are preserved. But if the water is allowed to boil as long as the meat is cooking, we shall have a flavorless, stringy, unattractive piece of meat. The connective tissue will be dissolved and hence the muscle fibers, not having anything to hold them, will fall apart. But they will not be tender, having followed their law and become hard under high heat. Neither will they be digestible, because the extractives, the substances which give flavor and stimulate digestion, will have been boiled out.

A typical recipe for preparing cheap cuts of meat, which may be varied in many ways to suit different tastes, is as follows:

Mutton Pot Roast (Maria W. Howard).—"Wipe, roll, and skewer a fore quarter of mutton from which the bones have been removed. Brown in a small amount of fat in a hot frying pan. Parboil four potatoes. Drain. Put a layer of potatoes in a deep casserole or pudding dish, cover with a layer of sliced onions, sprinkle with flour, salt and pepper. Put the meat on the vegetables and add one cup of water or stock. Cover and cook in a slow oven three hours. Add more liquid if needed, but if the oven is right, or the fireless cooker is used, no more should be necessary."

Roasting, broiling, and pan-broiling must, as we found in our experiment, be reserved for the tender cuts of meat. In all these processes, strong heat is applied just long enough to enclose the meat in a protective shell by means of hardening the outside. The heat is then reduced, and the meat cooked only long enough to coagulate the protein,

Roast beef.—Wipe the meat, put on a rack in the dripping pan, skin side down, and dredge with salt, pepper and flour. Put a little suet or butter in the dripping pan to keep the flour from burning. Put into a hot oven to sear the surface, but reduce the heat as soon as the flour is browned. In using a double roaster, it is better not to put on the top until this time. Before covering, baste the meat with the fat that has tried out, and if necessary add a little water. If the double roaster is not used the meat should be basted every ten minutes in order to keep it juicy. Turn it over when half done. If the meat is liked rare, do not allow more than ten minutes for each pound, and an extra ten minutes "for the pan." If liked well done, allow twelve minutes for each pound and twelve for the pan.

Pan-Broiled Lamb Chops.—Trim off a large part of the fat, because mutton fat is much less digestible than beef fat. *Do not*

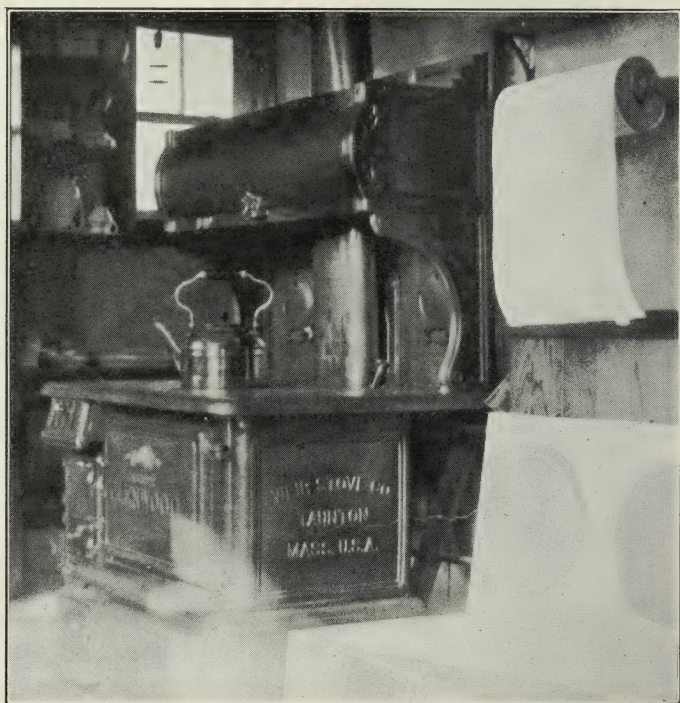


FIG. 307.—KITCHEN RANGE WITH ALL "ORNAMENTS" LEFT OFF. ROLL OF PAPER TOWELLING AND FIRELESS COOKER IN FOREGROUND (IDA S. HARRINGTON),

grease the pan. Have it very hot. Sear the chops quickly on both sides so as to hold the juices in, then move the pan back and cook at a moderate temperature, turning very often. Pour off the fat as it collects in the pan. Cook eight to ten minutes. Remove to a hot platter and sprinkle both sides with salt and pepper.

Starchy Foods

When starches are properly digested, they are changed into weak sugar solutions which can be at once absorbed by the blood. Their value in the diet is destroyed by serving them half-raw since the human body has neither ability nor time to absorb raw starch.

The essential thing in cooking starchy food is to separate the granules which compose the starch cell, and to make them swell by means of sufficient heat and moisture. It is also important to cook starchy foods, especially cereals, long enough to develop the flavor they were intended to have, in place of the raw taste which has banished breakfast foods from so many tables. Cereals absorb water in exact proportion to their weight. Thus, one cup rolled oats weighs three ounces and needs three cups of water to cook it; one cup of rice weighs eight ounces and needs eight cups of water to cook it. To cook oatmeal properly, sprinkle it into boiling salted water, cook it over direct heat for five minutes, then cook it slowly, either on the back of the stove, in a double boiler, or best of all in the fireless cooker, for eight hours, or as much less as is unavoidable. To cook rice, wash and drain it, and sprinkle it slowly into water that is boiling so rapidly that the rice will be kept moving about, and thus will not need to be stirred in order to keep it from sticking. When tender, drain it in a colander and set it in the open oven to dry. It will take about thirty minutes on the ordinary stove or two hours in the fireless cooker.

In using starch in powdered form, as in flour or corn starch, it is necessary to separate the starch grains before cooking by thoroughly and smoothly mixing them with cold water or with fat. This makes it possible for the boiling liquid to get in between the starch grains and swell them. In this way we get a smooth mixture instead of a lumpy one.

The best example of this is white sauce, cream sauce, or cream gravy. It is called by all three names, but under whatever name we know it, it is one of our best stand-bys in food preparation. It makes the foundation of cream soups, scalloped dishes, croquettes, pudding, many dishes of left-overs, and may on occasion take the place of cream. It may be made in one of several different ways, but the two most commonly used are the French method and the method used in invalid cookery. The proportions are from one-fourth to four tablespoons of butter and one-fourth to four tablespoons of flour to every cup of milk, according to the thickness desired.

White Sauce, French Method.—Melt the butter in a sauce pan, add the flour and stir over the fire till smooth. Remove from the fire, and add the cold milk gradually. Return to the fire, and cook over direct heat for five minutes, stirring constantly, or in the double boiler for ten minutes.

White Sauce, Invalid Cookery Method.—Reserve one-fourth of the milk and mix it with the flour to a smooth paste. Put the rest of the milk on to boil. Add the hot milk gradually to the flour paste and milk, and return to the fire. Boil for five minutes, stirring constantly. Add the butter and remove at once from the fire. This is more easily digested because the butter is not allowed to cook. It is also possible by this method to make it with a much smaller proportion of butter.

Other fats may be substituted for butter, and other liquids may be used instead of milk, such as chicken stock, tomato juice, etc., to make a great variety of sauces, all of which depend on the same principles for their success.

By whatever method our sauce is made, we must guard against the forming of a "skin" on it if it is allowed to stand. A little water or a moist cloth over the top will prevent the skin from forming. If cream soups and cocoa are thoroughly beaten with an egg-beater just before serving, they will stand up for some time without forming the skin.

To show the possibilities of cream gravy in forming the foundation for all kinds of dishes, a bill of fare is given, made entirely of cream gravy and left-overs. Incidentally, the method of preparation forms a rather interesting problem in arithmetic.

Dinner for one, composed of left-overs and cream gravy.

Materials: 1 cup thick cream gravy (made of 4 tablespoons butter, 4 tablespoons flour, and 1 cup milk. No seasoning). 1 cup milk.

Left-overs, consisting of: 1 egg, bread crumbs, 2 teaspoons cocoa, 4 teaspoons sugar, 1 boiled potato, $\frac{1}{2}$ cup tomato juice, 2 tablespoons cold chopped meat, 1 teaspoon butter, pepper and salt, baking soda. Two cups of lard, or half lard and half beef drippings.

Have the cream gravy smooth and hot, and have the extra cup of milk heated, ready to use for thinning. Season the chopped meat with pepper and salt, and mix with equal parts (that is, two tablespoons) of the thick cream gravy. Put on a plate and set away to cool. To the remaining sauce add $\frac{1}{2}$ cup of the hot milk. Mix 2 teaspoons of cocoa and 4 teaspoons of sugar with a little hot water. Cook over hot water till smooth. Add $\frac{1}{2}$ cup of cream gravy, stir over hot water for a minute and put into an individual mould. Set aside to cool. To the remaining sauce add $\frac{1}{4}$ cup of hot milk. Butter a mould and put in the cold potato which has been chopped and seasoned with pepper and salt. Cover with $\frac{1}{2}$ cup of sauce. Sprinkle with buttered bread crumbs, prepared by stirring 2 tablespoons of bread crumbs and 1 teaspoon of butter in a frying pan till mixed. Set aside to be browned in the oven later. To the remaining sauce add $\frac{1}{4}$ cup of milk. Bring $\frac{1}{2}$ cup of tomato juice to the boil. Season, and add a pinch of baking soda. Add $\frac{1}{2}$ cup of cream gravy. (This takes all we have left.) Cover with a damp cheese cloth after beating well with an egg beater. Sprinkle fine dry bread crumbs on a sheet of brown paper or on a bread board. Beat 1 egg slightly and add 1 tablespoon of water. Season with pepper and salt. Take a tablespoon of the croquette mixture for each croquette. Shape it by rolling lightly in the bread crumbs. Cover with the egg mixture, roll again in the bread crumbs and fry in the lard which has been heated until a cube of bread will turn a golden brown in forty seconds. (This is the temperature to have deep fat for frying any mixture that has been cooked before.) When you begin to mould the cro-

quettes, put the potatoes in the oven to brown. While the finished croquettes are draining on brown paper, see that the soup is hot (it must *not* reach the boiling point or it will curdle) beat it up once more, and serve the dinner. This can be prepared from start to finish in one hour, and could be done for four people almost as quickly as for one.

Cooking of Cellulose

Cellulose or plant fiber is valuable in the diet because it increases bulk and stimulates digestion. It resists the action of hard water, therefore in the cooking of dried beans in hard water it becomes necessary to add a little baking soda. In using soda, cook the food in the soda and water for only a part of the time, then drain, and cook for the remainder of the time in plain water. After a certain point of cooking, cellulose, as in cabbage, becomes tough and stringy, and thus causes indigestion.

Cooking of Vegetables

The strong-juiced vegetables like cabbage, turnips, onions, are often looked upon as hard to digest, but this is largely a matter of cooking. If they are properly cooked, that is, cooked quickly, in an uncovered sauce pan, in plenty of water, they will be mild in flavor and digestible. If we wish to make them still milder, we can do so by changing the water twice or three times during the process of cooking. They should be removed from the fire just as soon as they are tender. Cabbage should not be cooked more than twenty minutes. In the cooking of mild-juiced vegetables like green peas, string beans, asparagus, spinach, it is necessary to use a covered sauce pan and a small amount of water. Putting salt into the water helps to preserve the green color, but vegetables will be more tender if salt is not added until cooking is nearly completed. There are many possibilities for variety in the preparation of vegetables which we fail to make use of. Sweet corn, boiled on the cob, will be better if we can use half milk and half water. The liquid can afterwards be used as the basis for cream of corn soup. Corn should not boil more than ten minutes after boiling begins.

Parsnip Fritters (Janet McKenzie Hill).—"Boil the parsnips, remove the skins, mash, and season with salt, pepper and butter. Flour the hands and shape the mixture into small cakes. Dip these cakes in flour and fry in hot salt-pork fat."

Canned-Tomato Pudding (Janet McKenzie Hill).—"Mix 1 pint of canned tomatoes, 1 cup of grated bread-crumbs, $\frac{1}{3}$ cup of grated cheese, $\frac{1}{2}$ teaspoon of salt, and pepper to taste. Pour into a buttered baking dish. Mix $\frac{1}{3}$ cup bread crumbs with 1 tablespoon melted butter and 2 tablespoons grated cheese, spread over the top and bake about twenty minutes."

Cooking of Eggs and Egg Mixtures

The law of cooking all egg mixtures is slow cooking at a moderate temperature. If we try to hurry the process, the result will be a loss in quantity, a loss in digestibility, and a loss in attractive appearance. Compare a dish of scrambled eggs or a baked custard prepared at a restaurant where many people must be fed within a limited time, with a dish of scrambled eggs or a baked custard prepared by a careful housewife. In the former case, the order of scrambled eggs will be small in amount, composed of small tough particles and there will be more or less liquid at the bottom of the dish; the custard will also be hard and tough, full of holes, and again there will be liquid all around it. The scrambled eggs prepared at home will give twice as many helpings from the same number of eggs, will be in large, glossy, tender flakes and will not give up any moisture; the homemade custard will be tender, smooth, and delicate, and again there will be no moisture at the bottom of the cup. The difference is that on the one hand, preparation was hurried by increasing the heat beyond the point at which good egg cookery is possible, while on the other the law of egg cookery was observed. It is the more important to do this, because egg combinations, like cream gravies, form one of our "stock mixtures" in the kitchen.

When the white of egg is heated to 134 degrees, fine threads appear in it, it becomes semi-solid, and is easily digested. If heated to 160 degrees, it is a tender white jelly, easily digested. If heated to 212 degrees (boiling point), it becomes a tough

jelly and is less easily digested. If fried to 300 degrees, it becomes hard, horny, and very indigestible. For soft-cooked (not soft-boiled) eggs, allow one pint of boiling water for one or two eggs — even if only one egg is to be cooked there should not be less than one pint of water — lower the eggs into the water, cover closely and let stand at the very back of the stove, or even away from the stove, for six to eight minutes for a medium-cooked egg. For hard-cooked eggs, leave them in the water for forty-five minutes. Hard-cooked eggs prepared in this way will never show any discoloration where white and yolk meet. For fried eggs, have plenty of fat in the pan, but do not have it so hot that it bubbles and spatters. Keep pouring the fat over the eggs with a spoon, and as soon as the yolks are covered with a film, remove the eggs from the fire.

Scrambled Eggs.—For every egg allow from one to four tablespoons of liquid, according to taste. The liquid may be water, milk, cream, soup stock, or tomato. Scrambled eggs may be cooked either in an omelet pan or in the double boiler. Do not stir them round and round, but move the spoon or fork in parallel lines. If a frying pan is used, it is a good plan to have a serving dish ready, and as fast as any of the egg mixture sets, remove it with the spoon to the dish.

Omelets.— There are two types of omelets — foamy omelets in which whites and yolks are beaten separately, and French omelets in which they are beaten together. Foamy omelets require a larger pan. The proportions are the same in both kinds: For each egg allow one tablespoon of liquid, either water, milk, cream, or (for an orange omelet) orange juice, $\frac{1}{8}$ teaspoon salt, and $\frac{1}{2}$ teaspoon butter. Water makes a more tender omelet and one that will stand up longer, than does milk or cream. To make the foamy omelet, beat the yolks and whites separately, and fold the yolk into the white. Have the frying pan warm, not hot. Spread the mixture evenly over the buttered pan. After cooking until the under side is a golden brown, set in the oven for a few moments to dry, then fold on a hot platter. A crease made down the center of the omelet will assist in folding.

French omelet is stirred like scrambled eggs until set, then the mixture is lifted so that a little butter may be put into the pan

on each side, and the omelet is browned and folded. An omelet is always better for having a larger number of egg yolks than whites. In calculating, count two egg yolks as one egg. Omelets are varied by the addition of flour, rice, or bread crumbs, and by the use of filling such as peas, chopped ham, asparagus tips or tomato.

Custards.—In cooking custards, we have a double necessity for maintaining a low temperature, since the casein of milk as well as the albumen in egg is hardened by heat. The double boiler, in which milk does not reach more than 194 degrees is therefore a necessity in the making of good custards. A custard if cooked at high temperature will separate into curds and whey and be tough and horny. The proportion for custards is 4 eggs, $\frac{2}{3}$ cup of sugar, and $\frac{1}{2}$ teaspoon salt to every quart of milk if the custard is to be served in individual cups, and twice as many eggs if it is to be moulded in a large mould. As in the making of omelets, the result will be more delicate if we use more yolks than whites. For boiled custard, beat the eggs slightly (just enough so that they will pour from a spoon), add the milk which has been heated with sugar and salt, and cook in a double boiler, stirring constantly, until the mixture thickens. Strain and chill. Custards may also be put into cups and cooked in a steamer, or baked in cups set in a pan of hot water in the oven. In the latter two methods the custards are not stirred. They are tested with a knife. When the knife comes up clean, the custards are done. To lessen the expense, fewer eggs may be taken and cornstarch or flour added, in the proportion of $\frac{1}{2}$ to $\frac{3}{4}$ tablespoon of cornstarch to every cup of milk. If flour is used, take twice as much, since flour has only one-half as much thickening power as cornstarch. Custards form the basis of bread puddings, French toast, cheese mixtures like Welsh rarebit, and boiled salad dressings. A salad dressing may be combined out of our two stock mixtures, cream gravy and custard, as follows:

Make a custard of 2 eggs, $\frac{1}{2}$ cup scalded vinegar, 1 teaspoon sugar, $\frac{1}{2}$ teaspoon salt, $\frac{1}{8}$ teaspoon mustard, pinch of red pepper.

Make a cream sauce of 2 tablespoons butter; 2 tablespoons flour, 1 cup milk,

Cool both mixtures, being careful to protect the cream sauce against "skinning" by covering with a damp cheesecloth, and beat the custard into the cream sauce.

Cake Making

It is but a step from omelets to sponge cake, for in both eggs form the basis, and the laws of egg cookery must be obeyed. In cake making more than in any other branch of cookery, we have

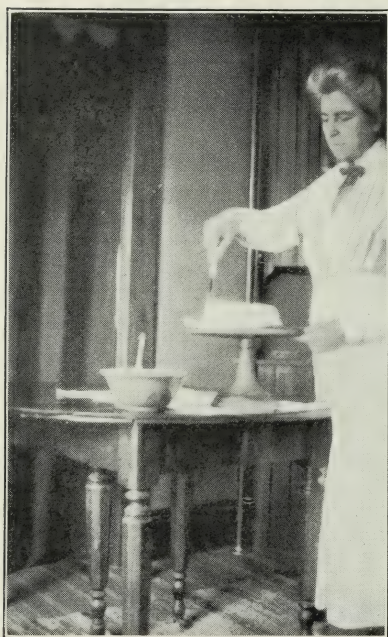


FIG. 308.—FROSTING A CAKE.

felt it necessary to memorize numbers of recipes, but if we analyze the average rule, we shall find that it is only a development of the stock formula of all sponge cakes, or of the stock formula of all butter cakes. With these two recipes firmly fixed in our minds, and a general knowledge of proportions, as of baking powder to flour, flour to liquid, and so on, we shall be able to work out numberless variations for ourselves.

Stock formula for sponge cake mixture: 6 eggs, 1 cup sugar, 1 cup flour, lemon juice and rind to flavor, pinch of salt.

In this as in other old recipes, no baking powder was used. The dependence was on eggs and elbow grease to make the cake light, but as the price of eggs went up and time ran short, the number of eggs was reduced and baking powder began to replace both eggs and beating. The original sponge cake needs a slow oven, just exactly as would a baked omelet, of which it is only a variation. If we make a sponge cake with baking powder, it needs the same temperature for baking that a butter cake does. The fewer eggs and the more baking powder used in a cake, the hotter oven does it require.

Stock formula for butter cake mixture.—“One-Two-Three-Four” cake: 1 cup butter, 2 cups sugar, 3 cups flour, 4 eggs, 1 cup milk, 3 teaspoons baking powder.

If we go back as far as 1873, we find in “Fifty Years in a Maryland Kitchen”, by Mrs. B. C. Howard, recipes so lavish of eggs that the use of baking powder was not called for.

Vineyard Pound Cake with Fruit (1873).—One and a half pounds each of butter, sugar and raisins, one and a quarter pounds of flour (down weight), fifteen eggs, a small plate of sliced citron, a heaping teaspoon of mace.

But that type of recipe does not concern us to-day. We are more likely, if we are thrifty housewives, to simplify the one-two-three-four cake into a plainer cake like one that calls for but one-half cup of butter to two cups of sugar, and but three eggs instead of four. In this case we reduce the flour also one-half cup.

In a one-egg cake, the proportion of butter to sugar remains one to two, but the proportion of butter to flour becomes one to six, and the amount of baking powder needed is more than trebled.

Soda is used for leavening in any mixture containing an acid with which it may combine, as with raisins and currants, molasses, brown sugar, vinegar, lemon juice, sour milk, and chocolate, all of which contain sufficient acid to react with soda.

No amount of leavening will replace careful mixing and beating of a cake, and we sometimes have “bad luck” with a cake because we have misunderstood the terms used in cook books. “Stirring” means passing the spoon round and round in circles. This mixes the ingredients, but does not make the mixture light. “Beating” means turning the mixture over and over as if we were twirling an imaginary wheel through it. This fills the mixture with air. “Cutting and folding” is combining two mixtures into which air has been beaten, in such a way as not to undo any of this work. It means cutting down through the mixture with a spoon or knife and, when it touches the bottom of the bowl, turning it over. With a sponge cake mixture, we start with the egg yolks, beating them until they are very thick and pale yellow. Add the sugar gradually, beating (not stirring) all the time, then add the flavoring, and either add the beaten whites and the flour alter-

nately, or all the whites first and then the flour. In either case, both egg whites and flour must be cut and folded, not beaten, in.

Butter cakes are mixed by creaming the butter, adding the sugar gradually, next the egg yolks beaten until very light, then alternately the liquid and the flour (in which the leavening and the salt have been sifted), and last, after thorough beating, the beaten egg whites are cut and folded in. A coarse-grained cake may mean either too much baking powder, or not enough beating before adding the egg-whites. Beating *after* adding the egg whites only does harm. Flour will vary at different seasons, and the same barrel of flour will vary according to where it is stored; that is, if stored in a damp place it will take up less liquid as time goes on than if it were stored in a dry place, as of course it should. We must modify the amount we use to conform to any such change. The oven for sponge cakes, as already stated, should be moderate throughout. For butter cakes it should be moderate at first. To quote Mrs. Lincoln: "Divide the time required into quarters. During the first quarter the heating is not manifested except by raising; during the second, the cake should continue to rise, and begin to brown; then it should become all over a rich golden brown, and, in the last quarter, settle a little, brown in the cracks, and shrink from the pan."

Muffins

Of the making of muffins there would seem to be no end; yet, as is the case with cake mixtures, there is after all only one muffin from which all the others are derived. If we classify our muffin knowledge, we shall get a result something like the following table:

(From lectures by Maria W. Howard, Simmons College.)

Variety

Ingredients

One-egg. — 2 cups flour, 4 teaspoons baking powder, 1 egg,
1 cup milk, $\frac{1}{4}$ tablespoon fat, $\frac{1}{4}$ tablespoon
sugar.

Corn. — 1 cup corn meal, 1 cup flour, 4 teaspoons baking
powder, 1 egg, 1 cup milk, $\frac{1}{4}$ tablespoon fat,
 $\frac{1}{4}$ tablespoon sugar.

*Variety**Ingredients*

Entire Wheat.— $1\frac{1}{2}$ cups entire wheat, $\frac{1}{2}$ cup flour, 4 teaspoons baking powder, 1 egg, 1 cup milk, $\frac{1}{4}$ tablespoon fat, $\frac{1}{4}$ tablespoon sugar.

Rye.— $\frac{3}{4}$ cup rye, $1\frac{1}{4}$ cup flour, 4 teaspoons baking powder, 1 egg, 1 cup milk, $\frac{1}{4}$ tablespoon fat, $\frac{1}{4}$ tablespoon sugar.

Bran.—1 cup bran, 1 cup flour, 4 teaspoons baking powder, 1 egg, 1 cup milk, $\frac{1}{4}$ tablespoon fat, $\frac{1}{4}$ tablespoon sugar.

The method of preparation is the same: Mix and sift the dry ingredients, add the well-beaten egg, the melted butter and the milk in the order given. Bake in a hot oven. If more eggs are used, take less milk. In increasing the amount, if you should take as much as four times the recipe, that is eight cups of flour and four eggs, lessen the proportion of baking powder a little. Twelve teaspoons instead of sixteen would be enough.

Every kitchen ought to have hanging in it framed copies of the "Cook's Time-Table", "Table of Proportions" and "Table of Weights and Measures", given in Janet McKenzie Hill's "Practical Cooking and Serving." The table of proportions reminds us, for instance, that

"1 measure of liquid to 1 measure of flour — pour batter; 1 measure of liquid to 2 measures of flour — drop batter; 1 measure of liquid to 3 measures of flour — dough.

That it takes 1 teaspoon soda and $3\frac{1}{2}$ teaspoons cream of tartar to one quart of flour, 2 teaspoons baking powder to 1 cup flour, 1 teaspoon soda to 1 pint thick sour milk, 1 teaspoon soda to 1 cup molasses," etc.

It may be that we ourselves are able without conscious effort to carry it all in our heads, but if the time should come when we were sick in bed, and some novice was trying to take our place, would it not be a relief to know that she need not come and ask: "When shall I put the meat in?" "How much soda does this take?" or "How long do you cook parsnips?" It is in a line with labeling all the stores in our kitchen, so that even a person

unfamiliar with our arrangements could find what was wanted without opening half a dozen wrong containers before finding the right one.

Cooking of Fats

There is no doubt that most people use more fat than is good for them, and that, as many writers assure us, we should be a stronger nation if the frying pan could be banished. But before adopting this extreme measure, it is well to stop and think whether some of the harmful results from fried food are not due to our having forgotten the laws in regard to the care and use of fat. In storing all fats, including butter, we must remember that the action of the air causes them to break down into the substances of which they were made. When this occurs, the result is rancid fat. It is therefore necessary, if we would keep our butter and fat in good condition, that they should not be set away uncovered. The same result occurs when fat is heated to too high a temperature in cooking. As soon as it begins to smoke, it begins to break down and take on the quality described as being "acid," a word which by its very sound suggests the irritating effect of fat that has reached that point. Mutton fat, which has a high melting point, breaks down into an especially irritating substance. As soon as fat begins to smoke slightly, therefore, is the proper time to use it for cooking. There is a rather widespread theory that if fat is bad, then the use of a *little* fat, as used in a frying pan, is less harmful than the use of *much* fat, as used in a deep kettle of lard or drippings. But it works just the other way, because in the shallow pan the surface of the food that is exposed to the air cools off, and then when it is turned over soaks up more or less fat. This may be an advantage in cooking very dry meats like chicken, which would become more palatable by being slightly fat-soaked, but is not desirable in any other way. By frying in deep fat, the article of food, as it is immersed, is at once covered with a protective crust which keeps any fat from soaking through. If the food is properly drained on absorbent brown paper as soon as it is removed from the fat, it will not be greasy on the outside either. After fat has been used, it must be allowed to cool and settle and then be strained through a cheesecloth, covered and set away. When it is to be used again, do not heat it too quickly.

Let it heat gradually at the back of the stove, and then clear it with a few thin slices of potato or apple. During frying it is a good safeguard to leave a cube of bread in the fat. This will burn before any other food and give warning that the fat is getting too hot.

Fried Oysters in Batter

(Fannie Merritt Farmer)

"2 eggs, 1 teaspoon salt, $\frac{1}{8}$ teaspoon pepper, 1 cup bread flour, $\frac{3}{4}$ cup milk.

"Beat eggs until light, add salt and pepper. Add milk slowly to flour, stir until smooth and well mixed. Combine mixtures. Clean the oysters and dry between towels. Dip in the batter, fry in deep fat, drain and serve."

Salted Nuts

In a small deep saucepan, salted nuts may be prepared in one-third the time it takes to do it in the oven by immersing them, a few at a time, in salad oil or in a mixture of half lard and half butter that has been melted and poured off from its sediment, until they are a golden brown. Drain on brown paper and sprinkle with salt. In getting peanuts for salting, be sure to get them unroasted. The fat used for frying the nuts, may, if properly cared for, be used many times.

Sugar Cooking

Although the professional cook recognizes many other stages in sugar cooking, there are three with which the average housewife is most concerned. The first is when the sugar, by the addition of water and by means of boiling, has been changed from a solid to a solution and from a solution to a syrup. At this stage it forms the basis for boiled frostings and candies, and is used as a syrup to sweeten fruit beverages, sherbets, and the like. The second stage is when, by means of longer boiling, the sugar syrup has thickened and become yellow in color and slightly less sweet. At this stage we use it as the basis for candies like nut brittle, and for caramel custards, caramel frostings and caramel flavor, where sweetness is still desired. The third stage is reached when, after still longer cooking, the sugar has turned dark brown and has lost practically all its sweetness. At this stage it is used for color-

ing soups and gravies and is known as "Kitchen Bouquet" commercially. If we kept on cooking it after this stage, it would finally change to carbon.

In cooking sugar, we want to cook it to the right degree of thickness and to keep it from growing grainy. This is impossible unless we add to the cane sugar a small amount of glucose, or change some of the cane sugar itself into glucose (which does not form crystals so readily as does cane sugar) by our method of cooking. Cane sugar is made up of equal parts of glucose and levulose, and the mixture of the two is broken up by being cooked with an acid like cream of tartar or a fruit acid. The harmfulness of glucose, of which we have heard so much, comes only from glucose commercially prepared from impure substances.

In boiling sugar to form the basis of candies, known as "fondant," select a perfectly smooth saucepan, large for the amount of sugar you are going to use. Take two cups of granulated sugar and one-half cup of water. Set it over the fire and let it dissolve slowly, stirring it often until the boiling point is reached. With a brush dipped in cold water wash down the sides of the saucepan to remove any grains of sugar that may have caught there. Add one-fourth teaspoon of cream of tartar. Let the solution boil rapidly without stirring, but not so hard as to throw the sugar against the sides of the kettle. By very gently putting the cover on (jarring the kettle is sure to make the fondant grainy) and leaving it for two minutes and then removing it, any remaining grains of sugar will be washed from the sides of the kettle by the steam. Boil until the syrup forms a soft ball in cold water. Remove from the fire and let it stand in the kettle for a few moments, then pour it out on a large platter that has been dampened with water. Let it stand undisturbed until the finger or a fork pressed on it leaves an impression. Do not let it stand until a crust forms, but do not try to stir it while it is too hot. Work it with a wooden spoon until it is a soft creamy mass, then take it in your hands and knead it just like bread. Pack it in preserve jars and cover with waxed paper besides the glass tops. It will keep for months, and a little of it can be melted in a double boiler as needed and used for frostings or candies. Do not try to make it on a wet cloudy day, as the solution will not thicken satisfactorily.

Boiled Frosting

One and one-half cups of granulated sugar, $\frac{1}{2}$ cup cold water, $\frac{1}{4}$ cup egg whites (whites of two average sized eggs) beaten until dry, $\frac{1}{4}$ teaspoon cream of tartar, 1 teaspoon vanilla and $\frac{1}{2}$ table-spoon lemon juice.

Dissolve sugar and water slowly, stirring often until boiling is reached. Give the mixture a final stir at the boiling point when adding the cream of tartar. Then boil without stirring until a little taken up on a spoon will spin a long thread. The spoon must be held high above the mixture to make this test accurate, otherwise the steam from the kettle will interfere. There will be time enough to beat the egg whites after the syrup has begun to boil, before the syrup needs to be tested. As soon as you get the thread test, pour the syrup in a slow, steady stream over the egg whites, beating all the time. The best way for one person to do this alone is to pour with the left hand and beat the mixture with a strong wooden spoon held in the right hand. Beat until the frosting is ready to spread.

If in spite of all efforts, the frosting is "runny," put it into the upper part of the double boiler, and cook it over hot water, beating it all the time until it begins to coat the sides of the saucepan as fudge does when it is ready to beat. Remove at once from the fire. A very few minutes' beating now will make it ready to use. We have utilized the thickening power of the egg white to help hasten the result we wanted. Another way in which "runny" frosting may be made right is by stirring into it melted chocolate until it has the consistency that we want. In this case the remedy lies in the fact that chocolate, because it contains starch, acts as a thickener. If the frosting should be too hard, a few drops of boiling water will remedy it.

Peanut Brittle

One cup sugar, 1 cup shelled, skinned, and chopped peanuts.

Put the sugar, without one drop of water, into an iron frying pan and stir constantly until it is melted. Add the nuts and pour into a warm buttered tin. Do not leave the sugar on the stove for a moment after it is all melted, as at this stage it goes quickly from one point to the next, and may grow too dark to use.

Kitchen Bouquet

Melt one cup of sugar in an iron frying pan just as before, but cook it until it is dark brown and no longer sticky. Add to it gradually one cup of water which has been boiled with seasonings like onions, bay leaf, a small piece of mace, pepper and salt. Cook sugar and water together until perfectly free from lumps and bottle for use in coloring and flavoring soups, gravies, stews, and so forth.

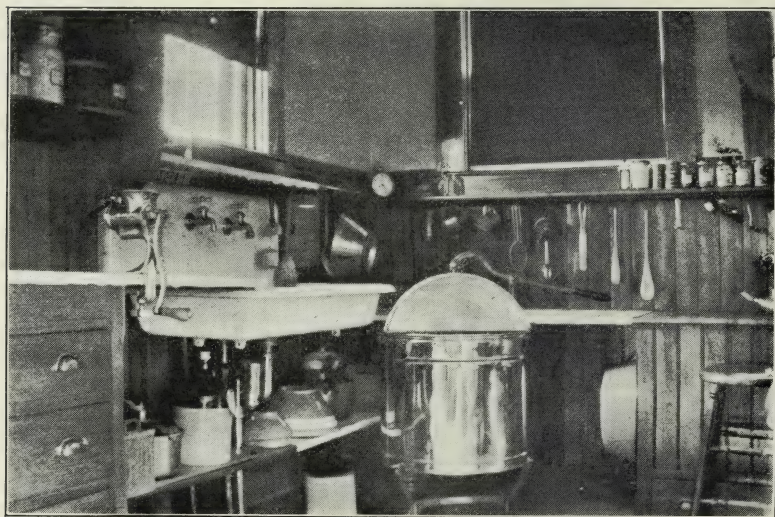


FIG. 309.—DISH-WASHER (KITCHEN OF IDA S. HARRINGTON).

BREAD MAKING

CORNELIA C. BEDFORD

Formerly New Jersey State Institute Worker

Four things at least are essential for good bread making—good yeast, good flour, right temperature, thorough baking. With all these points, separately and collectively, we must mix another—good common sense.

YEAST

First on the list comes yeast. Yeast is a fungus which, rightly treated, grows rapidly and is readily propagated; it is as readily killed by the application of either extreme heat or extreme cold.

The temperature best suited for right growth in bread making is from 70° to 80° Fahrenheit. The use of the yeast plant in bread making results in certain chemical changes which make the bread porous, agreeable to the taste, easily digested and healthful.

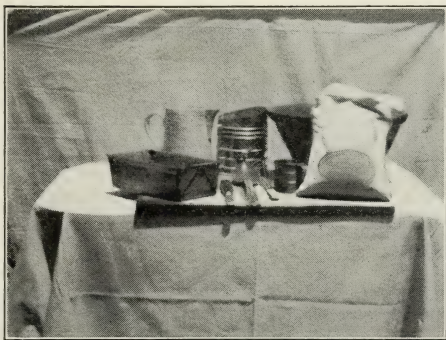


FIG. 310.—SOME OF THE ESSENTIALS IN BREAD MAKING.

We have a choice of three varieties—compressed, dry and liquid—according to locality and personal preference. Compressed yeast can be bought in all well settled localities and is usually preferred because it is pure, vigorous and will raise bread more quickly than either the dry or liquid varieties. When fresh the small, square cake is creamy white and crumbles on slight pressure; it does not keep long (two or three days) and if dark looking and somewhat pasty or slimy should be rejected. Dry yeast keeps indefinitely, hence it is a favorite when marketing facilities are not of the best. It requires more time for raising than either of the other kinds.

* *Liquid Yeast*

Liquid yeast is homemade and is usually very reliable. A good method is to pour a quart of boiling water on a half cup of dried hops, cover and steep half an hour, then strain. Pare, wash and boil six potatoes in enough slightly salted water to cover. Mix together one cup of flour, a half cup each of salt and sugar, wet to a smooth thin paste with cold water. Pour over it a quart of boiling water, stir and cook till clear like starch. Strain, add the hop water. Put the cooked potatoes and their water through a colander, mix all together, add enough boiling water to make one gallon. When cooled to blood heat add two dried yeast cakes or one compressed, dissolved in a half cup of tepid water. Put in a large crock or bowl, cover with a cloth and stand in a warm place. When a thick scum rises to the top cover closely (it may now be put in jars if desired) and store in a cool dark place. This will keep sweet and good for from four to eight weeks. The hops give the bread a better flavor but are not essential to the success of the yeast.

WHEAT AND FLOUR

Wheat, which is universally used in bread making, is variously classified by the time of sowing, as winter or spring; by color, as red or white; by quality, as hard or soft. Climatic conditions and methods of milling may cause material changes in the quality and kind of flour produced. Wheats which are rich in gluten, the nitrogenous or muscle-making portion of the grain, are preferred for bread making. At present the durum wheat which is

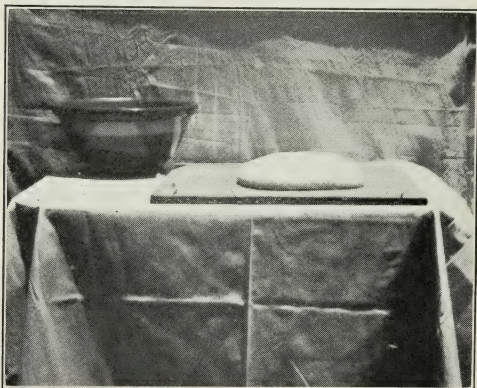


FIG. 311.—DOUGH KNEADED ON BOARD READY TO BE RAISED.

raised on the plains of our great northwest is considered especially rich in gluten and it is also used in making the best quality of

* All measurements given are level. A cup holds a standard half pint.

macaroni. Flour which is rich in starch but deficient in gluten makes better cake and pastry than does bread flour. In whole- or entire-wheat flour all of the grain is utilized except the outer bran coats. Much of the bran is retained in graham flour. Bran is largely composed of silica and is not itself digested by the body, but the bran particles are nevertheless valuable in the diet because they assist the body in ridding itself of waste matter. Gluten flour has a large portion of the starch removed and is prepared especially for diabetics and those to whom starch is prohibited. Other cereals are sometimes combined with wheat in the making of bread, but as their use is limited they are not considered in this article.

Brands of Flour

Many large grocery concerns have their own special brands of flour, and as names have little meaning to the dealer a dozen different brands may prove to be the same flour. Special machinery is necessary for the production of the various grades and varieties of wheat flours, therefore the housekeeper should experiment until she finds the kind of flour best suited to her needs and then stick to that kind. Where much flour is used she comes to know how it should look and feel and to detect quickly any difference or deterioration.

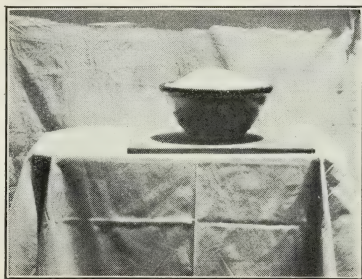


FIG. 312.—RAISED DOUGH IN BOWL
READY FOR MOLDING.

Simple Tests for Flour

Entire- or whole-wheat flour (both terms are used for the same product) vary in depth of color according to the special method of milling employed. They should not contain any bran and, aside from color, should answer to all the tests for white bread flour. Strong white bread flour should be of good cream color; when rubbed through the fingers it should feel slightly granular like very fine meal; a few spoonfuls squeezed in the hand should not retain the imprint of the fingers, but fall apart when released. On the contrary, pastry flour is white in color, clings to the

pores of the skin when rubbed between the fingers and a little thrown against board or wall will adhere to the surface after the fashion of a snowball.

Care of Flour

Flour is susceptible to all odors and can be as readily tainted as milk or butter. It is also sensitive to atmospheric changes and if placed in a damp store room will become heavy and often will mold. If a portion for daily or weekly use can be kept in the kitchen where it is warm and dry the bread made from it will be lighter and better.

MEASURING

In giving the proportions of materials necessary for a number of

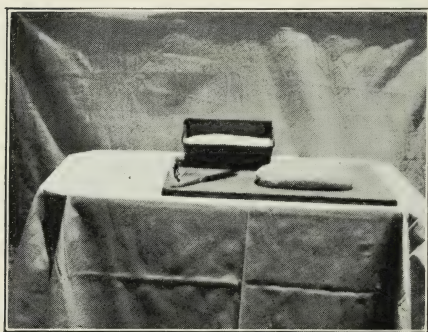


FIG. 313.—DOUGH MOLDED ON BOARD AND
IN PAN.

loaves of bread it is impossible to state the exact amount of flour needed, as it will vary with the brand and kind used. This variation is caused partly by the season in which the wheat was grown (whether wet or dry) and partly by methods in milling. The *wetting*, however, whether milk or water or a mixture of the

two, should be *measured*, the *flour* is to be added until a certain *consistence* is reached. This ensures loaves of the proper size.

BREAD RECIPE

For two loaves of the size made when deep loaf pans about five by seven inches are used, take three cups of water or milk; if milk, scald and cool it, especially in hot weather, to prevent souring. When lukewarm add a teaspoon of salt and half of a compressed yeast cake smoothly dissolved in a quarter of a cup of warm water, or a quarter of a cup of liquid yeast. If shortening is desired add one teaspoonful; if sugar, the same amount, increasing to a tablespoonful when graham or whole wheat flour is used. Stir into this mixture sufficient sifted flour to make a batter thick enough to drop readily from the spoon and beat until the batter is smooth and bubbles can be seen on the surface.

SPONGING

Place the bowl in a pan of warm water. If the mixing bowl is of heavy earthen ware the water should be so hot that the hand can just be dipped into it for a second; if of enamel ware or metal the water should be only comfortably warm or the batter will be cooked by the heat. Cover the bowl closely and stand where no draft can strike it; as the water cools more warm water should be added. In from half an hour to an hour, according to the liveliness of the yeast, the batter will have risen and be full of bubbles. When the kitchen equipment includes a fireless cooker utilize it for this raising of the bread. Gently heat a stone until comfortably warm to the hand. Set it in the cooker; place on it a towel folded several times, or anything which will give a quarter-inch of space above the stone. On this place the bowl or kettle and close the cover. This not only gives an even warmth but protects from draft and is especially good when bread must be raised over night.

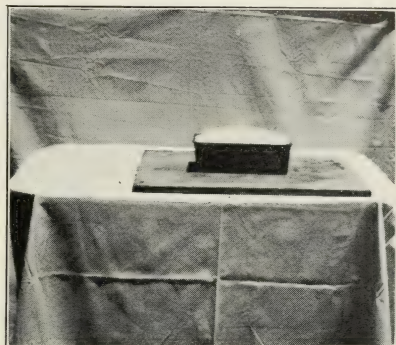


FIG. 314.—RAISED AND READY FOR THE OVEN.

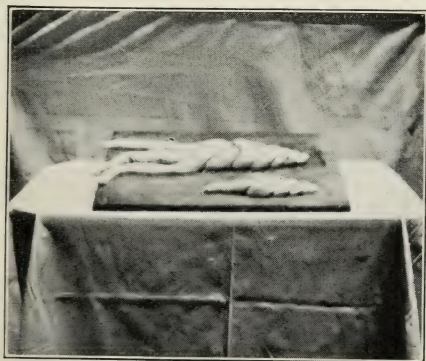


FIG. 315.—MAKING A LOAF OF TWIST OR BRAIDED BREAD.

KNEADING

When the bubbles begin to collect in a ring around the center, lift the bowl to the table and stir in more flour until the mixture is a *soft* dough. Turn this out on a well-floured board and knead. Methods of kneading differ, the essential requirement being that the entire mass of dough should

be worked until it feels smooth and velvety to the touch and does not easily adhere to board or hands. Grease a clean bowl, place the dough in it and brush the top with a little melted shortening. This prevents adhering to the bowl or crusting on top. Stand in warm water (or the fireless) as before, cover and set aside again until the dough has risen to twice its first size; this will take from one to three hours. It should then be turned again on the board and kneaded until no large bubbles can be felt through it.

MOLDING

With a sharp knife it should then be divided, each portion molded into shape, placed in the greased pans and the tops

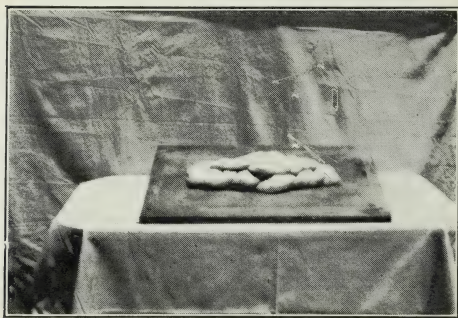


FIG. 316.—THE TWIST LOAF COMPLETED.

to be too coarse in texture.

brushed with water or shortening. Cover with a towel and let stand until the dough begins to rise; as soon as this change is plainly seen the pans should be placed in the oven. If the baking is delayed until the dough has fully doubled in size the bread is likely

BAKING

The oven should be moderately heated, so that the hand can be held in it for from ten to fifteen seconds. Should the heat be uneven — one side hotter than the other — the pan should be turned twice inside the first half hour. A loaf of this size should bake in from fifty minutes to an hour.

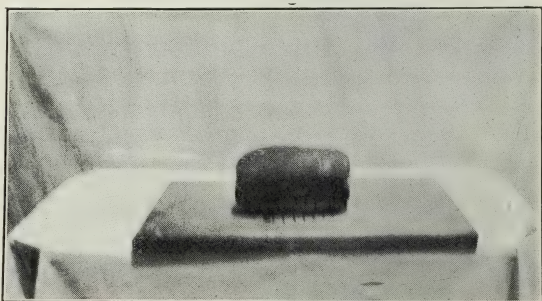


FIG. 317.—FRESH FROM THE OVEN.

BREAD PANS

Long narrow pans are better than short square ones and curved bottoms better than flat, that the heat may penetrate all parts of the loaf equally. Small pans are better than large and a separate pan is best for each loaf. Large loaves contain so much moisture that, once the crust has formed, it is difficult for sufficient heat to penetrate to the center to properly bake the dough.

CHANGES DURING BAKING

In baking bread the flour is changed to a form of sugar called dextrose, which is the first step in the digestion of starch. This change all starches must undergo to be digested in the human body. Further change through heat is found in the crust, also in bread sticks, making these small forms of crusty bread easier of digestion than the softer large loaf. The same result is found in zwieback or twice baked bread.

SHAPING A FANCY LOAF

Experience in working and molding bread dough makes some so-called "fancy breads" easily attainable at home. For the twist bread shown in the illustration divide the amount of dough intended for one loaf into four equal portions. Lay one portion aside. With the hands roll out the other three pieces into thick ropes fully two feet long, and half as thick at the ends as in the center. In rolling slightly grease the hands and use no flour. Arrange the pieces side by side, start in the center and braid to one end, pinching the ends together. Turn the braid upside down and again braid from the center to the opposite end. Repeated trials will be necessary at first to gain the correct shape. Divide the remaining portion into thirds and make a smaller braid in the same way, which place on top of the larger braid. Lay the loaf on a flat pan and bake as soon as light.

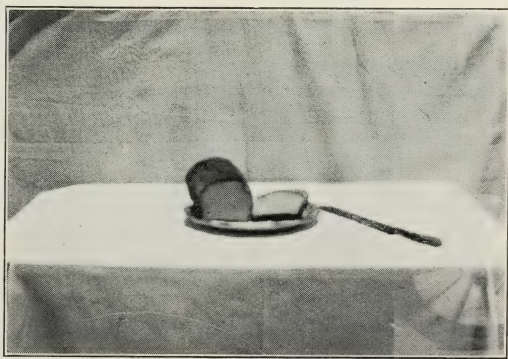


FIG. 318.—READY FOR SERVING.

CANNING SUGGESTIONS AND CANNING CLUBS

O. H. BENSON

Specialist in Charge of Club Work, United States Department of Agriculture

(From various addresses on Canning Club Work.)

We are a nation of spenders and wasters. Over 50 per cent. of all the foodstuffs grown in the United States in orchard, garden, and field, is wasted every year, and right up against this fact we have the unreconcilable truth that over one-half of the people who inhabit the globe will go to bed hungry tonight because they have not that with which to be fed.

Fifty-six per cent. of the 30,000,000 people engaged in gainful pursuits in the United States are making their living from agri-



FIG. 319.— OPERATOR AT WORK IN THE ORCHARD.

cultural and home economics lines. This means that this small percentage of people must undertake the enormous job of feeding the 90,000,000 people in this country. During the past fourteen

years the cost of living has increased remarkably. The groceries which could be purchased with one dollar fourteen years ago cost \$1.71 today. The work of feeding is always important because it directly touches the health and welfare of human beings. The best medical authorities of this country agree that over 80 per cent of the human ailments are directly traceable to the proposition of an improperly fed body. The American people live largely upon a diet made up something as follows: Meat, coffee, bread, butter, eggs, supplemented daily by a liberal dose of patent medicines, while out in the back yards and orchards are millions of bushels of healthful vegetables and fruits, rotting for want of proper methods of caring for this surplus. We should change to a diet more in keeping with nature's balanced ration: Fruit, vegetables, greens, bread, butter, eggs, and only a limited amount of meat.

The home canner when properly used will help to make available plenty of vegetables and fruit for every day in the year for the average home, and at a price which is not prohibitive.

THE PRICE OF CANNED VEGETABLES AT PRESENT

Tomato

Value of vegetable..... \$7 to \$9 per ton
One-half crop wasted.

Canning, Commercial:

Cost price of can of tomatoes.....	4 cents
Commission man.....	} 11 cents
Wholesale.....	
Jobber.....	
Retailer.....	
Transportation.....	
Cost of advertising.....	} 15 cents
Cost to consumer.....	

300 to 600 cans equals 1 day's work.

Child, 300 cans at \$0.11.....	\$33 00
Man, 600 cans at \$0.11.....	\$66 00

300 x \$33 equals approximately 1 year's results, or \$9,900.

300 x \$66 equals approximately 1 year's results, or \$19,800.

These figures are meant to show in the case of only one product, tomatoes, how great is the present waste, and how that waste may be saved and utilized:

Number 3 cans run 32 ounces to the can and 500 cans to the half ton, hence every half ton wasted might have been made to represent the cost price of 500 cans at 4 cents, or \$20. This includes wages for 1 $\frac{2}{3}$ days of child labor, or $\frac{4}{5}$ day of man labor, so that the 4 cents per can is really the net cost of all reserved for home use, and is also what the producer gets for his product under the present system. The additional 11 cents per can, now going to the handlers, might well be divided between producer and consumer by means of a more economical method of distribution.

SOME OBJECTS OF CANNING CLUB WORK

(1) To enlist the interest and efforts of the boys and girls in problems of efficiency and greater economy in farm and home;

(2) To demonstrate the best methods and the elimination of wastes in orchard, field, and garden;

(3) To teach habits of industry and thrift.

Club work is the organization of boys and girls into local groups and federated with county, state, and national bodies, for the purpose of demonstrating what is right in farm, home, and garden practices. The local organization contemplates officers, monthly or semi-monthly meetings, and the careful study of a complete farm, garden or home interest operation for the entire cropping season or school year. This is illustrated by the acre corn clubs, potato clubs, and the alfalfa clubs. In all clubs projects the main interest is upon the farm, in the home gardens, or in mother's kitchen, and necessitates the careful study of instructions, making observations, keeping records, making exhibits, and in short demonstrating that business practices are important in all farm and home activities.

The club work as a national project was undertaken by the United States Department of Agriculture in the south about eight years ago, and in the north, central and western states less than two years ago. The club work of the United States Department

of Agriculture is conducted in direct cooperation with the state institutions and state officials. During the past season 200,000 boys and girls were engaged in the game of constructive boys' and girls' club work, not only learning the lesson of production, management of the club plat, and plant life, but how to properly grade, crate, market, and eliminate the waste by the use of the home canner.



FIG. 320.—GIRLS OF THE NEIGHBORHOOD WERE CALLED IN TO HELP.

For every club member working in this particular phase of the work, there were perhaps a dozen adults getting the influences and instruction in an effective way. The state with its army of unemployed should appreciate the importance of this line of work. The future of the state will depend on her boys and girls,—not so much upon giving them a little academic exercise in a classroom or flower garden plat as upon teaching them the manly and womanly job of doing a piece of the world's work, and by so doing learning the lessons of economy, thrift, conservation, and the effectual elimination of waste.

To illustrate the practical application of club work to the farm

and home interests, we submit one of the many reports from the states and counties:

Sussex County, New Jersey.—Report submitted by County Agriculturist H. W. Gilbertson for the year ending December 1, 1913. The Garden and Canning Club of Sussex County was organized by Mrs. H. W. Gilbertson. An enrollment of 46 girls was secured in various parts of the county and they were required to take one-tenth acre of tomatoes and follow instructions in the management, grading, crating, marketing, and canning of surplus products, making exhibits, etc. The average cost to club members, including rent of land, fertilizers, cost of labor (allowing each girl 10 cents per hour for time spent in the work), cost of canning equipment, supplies, labels, transportation charges, etc., was \$22.04 on the one-tenth acre. Less than half of this was cash expense. The average amount of time spent on the work during the season was 85 hours. The average net profit to each girl was \$34.37. This gave an average for the season of 50 cents per hour to each girl in the club for her work. The average number of quart jars put up by the club members for home use was 71. The average number of No. 3 tin cans put up by each girl was 239, while the average number of pounds produced on the one-tenth acre was 2,778.

HOME-CANNER OUTFITS, CANS, AND SUPPLIES

Northwestern Steel and Iron Works, Eau Claire, Wisconsin.

Steam-pressure canners, many sizes.

The West Manufacturing Co., 372 Bullitt Bldg., Philadelphia, Pa.

Hot-water canners, water-seal outfits and other supplies.

Home Canner Co., Hickory, N. C.

Hot-water and steam canners, cans, and all supplies.

F. S. Stahl Canner Co., Quincy, Ill.

Canning outfits, cans, supplies, etc.

Modern Canner Mfg. Co., Chattanooga, Tenn.

Home canners, cans, etc.

Griffith and Turner Co., 205-215 N. Paca St., Baltimore, Md.

Implements, canning outfits, cans, and supplies.

A. K. Robins & Co., 116 Market place, Baltimore, Md.

Canning machinery, large and small canning equipment.

Farm Canning Machine Co., Meridian, Miss.

Hot-water canners, cans, labels, etc.

The Raney Canner Co., Chapel Hill, N. C., also Texarkana, Ark.-Tex.

Hot-water canners, cans, and labels.

The Royal Canner Co., Chattanooga, Tenn.

Canning outfits, cans, and supplies.

E. F. Kirwan & Co., Baltimore, Md.

Hot-water canners and cans.

Hazel-Atlas Glass Co., Wheeling, W. Va.

E-Z Seal Jars, bottles, tumblers, etc.

The Southern Evaporator Co., Chattanooga, Tenn.

Canning outfits, cans, supplies, etc.

American Can Co., Cleveland, Ohio.

Cans, all sizes.

CAN LABELS

The United States Printing Co., Cincinnati, Ohio. Branch offices, New York City and Baltimore. Special labels designed for girls' home garden and canning clubs, and vacation canning and marketing club work, including tomatoes, beans, catchup, greens, fruits, and all other canned products canned and packed by regular club members. For use of club members only.

EMBLEMS

Christian Finance Association, 80 Maiden Lane, New York City. Corn, potato, garden and canning, vacation canning and marketing and all-star club emblems.

The following table can be used to supplement Farmers' Bulletin 521 in the canning of all kinds of products when you do not use the exhaust and when using hot-water outfits, either homemade or the commercial kinds. Do not lower fruit in canners nor begin to count time until the water is boiling, (212 degrees, Fahrenheit). If you are using an all-steam-pressure outfit, we would advise that you follow carefully the time table and instructions furnished with each outfit.

TIME TABLE—HOT WATER CANNERS—COLD PACKED

	Minutes to cook	Size of cans
Apples	15	3
Apricots	15	3
Asparagus, greens.....	60	2 or 3
Apple cider.....	20	Special
Beans—lima and string.....	90	2 or 3
Blackberries, dewberries.....	8	2 or 3
Cherries, peaches.....	15	2
Corn without acids.....	240	2
Grapes, pears, plums.....	15	2
Hominy	60	3
Huckleberries	10	2
Okra	60	2 or 3
Okra and tomatoes combined.....	50	2 or 3
Oysters	50	1
Peas— (field)	40	2
Peas— (garden or English).....	60	2
Pineapple	30	2 or 3
Raspberries	15	2 or 3
Sauerkraut	50	3
Sausage	60	2
Sweet potatoes.....	80	3
Strawberries	7	3
Succotash	60	2 or 3
Tomatoes	22	2 or 3
Tomatoes and corn.....	80	2
Grape juice.....	15	2
Quince	30	3
Tomato juice.....	20	2
Pumpkin	50	3
Fish, pork.....	200	2
Chicken, beef.....	250	3
Figs	30	3
Squash	40	3
Spinach	60	3
Other greens.....	60	3
Rhubarb	25	3
Beets	20	3

CANNING RECIPES

Master the canning of tomatoes first, then proceed with other vegetables and fruits—one at a time.

Tomatoes.—Grade for ripeness, size and quality. Scald to loosen skins. Dip in cold water; remove skins; pack whole. Fill with tomato juice only and add 1 level teaspoonful salt to each quart. Place rubber and partially seal. (Cap and tip tins.) Sterilize 22 minutes in hot-water bath, 18 minutes in water-seal outfit, 15 minutes under 5 pounds of steam, or 10 minutes in pressure cooker. Remove jars, tighten covers and invert to cool.

Strawberries — 1.— Can fresh, sound berries same day picked. Hull (twist berries off hull); place in a strainer, pour water over to cleanse. Pack in jar or tin without crushing. Pour hot sirup over berries to top. Place rubber and top, partially tighten. (Cap and tip tins.) Sterilize 12 minutes in hot-water bath, 6 minutes under 5 pounds of steam, 8 minutes in water-seal outfit, or 4 minutes in pressure cooker. (Sirup: $1\frac{1}{2}$ qts. sugar to 1 qt. water boiled to medium thick.)

Strawberries — 2.— Same as above except sirup. Sirup: Crush berries for 1 qt. natural juice, add 1 qt. sugar, boil to medium thick sirup. Add as in No. 1.

Strawberries (sun preserves).—Select ripe, firm berries. Pick and preserve same day. Hull and rinse as in No. 1. Place in shallow platter in single layer; sprinkle sugar over them; pour over them 40 degrees sirup (same as No. 1 boiled thicker). Cover with glass dish or window pane. Allow to cook in hot sun 6 to 10 hours. Pack in glasses, jars or cups; tie paper over tops. (Paraffin or sealing wax.) Keep in cool, dry place.

Carrots, Parsnips, Sweet Potatoes, Etc.—Scald from 1 to 5 minutes in boiling water. Plunge in cold water. Remove skins; pack whole or sliced; add boiling water and 1 level teaspoonful salt to each quart. Place rubber and top and partially tighten. (Cap and tip tins.) Process $1\frac{1}{2}$ hours in hot-water bath, 1 hour, 15 minutes in water-seal, 1 hour under 5 pounds of steam, or 40 minutes in pressure cooker.

Egg Plant.—Scald 5 minutes in boiling water; plunge in cold water; remove skins. Slice crosswise and pack; add boiling water and 1 level teaspoonful of salt to each pint. Place rubber and top and partially tighten. (Cap and tip tins.) Process 1 hour in hot-water bath, 50 minutes in water-seal outfit, 45 minutes in steam pressure, or 30 minutes in pressure cooker. Remove jars, tighten covers and invert to cool.

Sweet Corn — on the cob.—Blanch in boiling water 10 to 15 minutes, according to ripeness, size and freshness; plunge in cold water. Pack, alternating butts and tips; add boiling water and 1 level teaspoonful of salt to each quart. Place rubber and top and partially tighten. (Cap and tip tins.) Process 180 to 240 minutes in hot-water bath, $1\frac{1}{2}$ hours water-seal outfit, 90 minutes under 5 pounds of steam, or 45 minutes in pressure cooker. Remove jars, tighten covers, invert and cool.

Sweet Corn — off the cob.—Same as above, except cut from ear after blanching. Pack and fill jars with boiling water, adding 1 level teaspoonful salt to each pint. Proceed as above.

Peas, Beans, Etc.—Blanch 5 to 10 minutes in boiling water; plunge in cold water. Pack and add boiling water and 1 level teaspoonful salt to each pint. Place rubber and top and partially tighten top. (Cap and tip tins.) Process $1\frac{1}{2}$ hours in hot-water bath, 1 hour in water-seal, 1 hour under 5 pounds of steam, or 35 minutes in pressure cooker.

Chards, Beets, Turnips, Etc.—Scald 1 to 6 minutes in boiling water; plunge in cold water; remove skins. Slice and pack; add boiling water and 1 level teaspoonful salt for each pint. Place rubber and top and partially tighten. (Cap and tip tins.) Process $1\frac{1}{2}$ hours in hot-water bath, $1\frac{1}{4}$ hours plunge in cold water; remove skins. Slice and pack; add boiling water and 1 cooker. Remove jars, tighten covers and invert to cool.

Greens — (*Spinach, Dandelion, Mustard, Beet Tops, Etc.*) — Blanch in boiling water 5 minutes, plunge in cold water. Cut ready for table use. Process 20 minutes in open kettle to shrink; season with slice of bacon for each pint. Pack, add hot water and a little salt to each quart. Place rubber and top and partially tighten. (Cap and tip tins.) Process 45 minutes in hot-water bath or water-seal outfit, 40 minutes under 5 pounds of steam, 30 minutes in pressure cooker. Remove, tighten covers and invert to cool.

Note.—It is always advisable to process the greens a short time before packing in order to reduce the bulk for packing.

Windfall Apples — Note.—For the canning of whole apples select firm, not over-ripe apples. A great difference in the canned products will be noted in the different varieties of apples. Recipe below is intended for firm and preferably tart varieties. Some varieties will require less time and some more. Experience will teach adjustment of time.

Recipe: Remove blemishes, cut out core. Blanch for 5 minutes in boiling water; plunge in cold water. Pack in tin cans or glass jars and add very thin sirup. Place rubber and top and partially tighten. (Cap and tip tins.) Process 20 minutes in hot-water bath, 15 minutes in water seal, 10 minutes in steam-pressure outfit, or 6 minutes in pressure cooker. Remove jars, tighten covers and invert to cool.

Note: Apples canned in this way will eliminate enormous waste and will make this product available for apple salads, dumplings, breakfast, apple dishes, etc.

Windfall Apples — for pie filling.—Peel and core. Slice; scald 2 minutes in boiling water; plunge in cold water. Pack in glass or tin and add about one teacupful of hot, thin sirup to each quart. Place rubber and top, partially tighten. (Cap and tip tins.) Sterilize 16 minutes in hot-water bath, 12 minutes in water-seal outfit, 10 minutes under 5 pounds of steam, or 4 minutes in pressure cooker. Remove jars, tighten covers, invert to cool.

Blanching.—After blanching plunge in cold water and pack quickly.

- (1) Blanch peas, beans, etc., 5 minutes.
- (2) Blanch corn on cob, 5 to 15 minutes.
- (3) Blanch pumpkin, squash, mangoes, about 5 minutes.
- (4) Blanch okra, cabbage, sweet potatoes, 5 minutes.
- (5) Blanch asparagus, spinach, kale, etc., 5 to 10 minutes.
- (6) Blanch rhubarb, beet tops, etc., 1 to 3 minutes.
- (7) Blanch or scald beets, carrots, turnips, etc., 6 minutes.
- (8) Scald tomatoes, plums, pears, etc., 1 to 2 minutes.
- (9) Scald peaches, apricots, 1 to 2 minutes.

Note.—Cook greens, cabbage, chard, etc., about 20 minutes before packing to reduce bulk.

Reasons.—Scalding: (1) To remove skins without loss of pulp; (2) to eliminate objectionable acids; (3) to arrest flow of coloring matter.

Blanching: (1) To eliminate objectionable acids; (2) to set coloring matter; (3) to make texture firm for sterilization.

Cold dip: (1) To separate skin from pulp; (2) to set color bodies; (3) to render packing easier.

Farmers' bulletins on home canning that may be had for the asking from the U. S. Department of Agriculture, Washington, D. C.:

Farmers' Bulletin 203, "Canned fruits, preserves, and jellies" by Maria Parloa.

Farmers' Bulletin 359, "The canning of vegetables in the home" by J. F. Breazeale.

Farmers' Bulletin 426, "Canning peaches on the farm," by H. P. Gould and W. F. Fletcher.

Farmers' Bulletin 521, "Canning tomatoes at home and in club work," by J. F. Breazeale and O. H. Benson.



FIG. 321.—THE FRUIT SHOWS THE RESULTS OF A BUSY SEASON.

ECONOMY IN BUYING AND CARING FOR FOOD

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Farmers' Institute Lecturer

To get larger results from their investments with less expenditure of money, time and labor, many manufacturers, corporations, department stores and other institutions are employing experts to look over their methods, to discover the waste and leaks, that their business may be more efficient. We are hearing much about efficiency at the present time, but nowhere does it count for more than in the business of home-making, especially that branch which pertains to the proper nourishment of the human family, that its members may be sufficiently equipped with brain, muscle, physical strength and moral character that they may perform successfully the ordinary and special activities of life.

In order to supply the necessary diet for the family at the present high cost of many articles of food, the housewife must become an efficiency expert in buying and storing, as well as in preparing food. She must calculate first how much she has to spend. Letting 100 per cent. represent the total income for the year, not less than 30 per cent. can be allowed for food. What part of her food supply can she look for from farm, dairy, orchard, garden and poultry plant, and what part will mean cash outlay? How successfully was she able to work it out last year? How much have prices changed? Where can she improve over the methods she used last year? The answers to all these questions depend on her having a record of last year's income and outgo to work from. In other words, it means a simple system of accounts.

Having ascertained what her resources are, her next problem is what to buy. *Economy does not mean doing without things. It means getting what we pay for.* To be sure of being able to do this, the housewife needs a knowledge of food values. She must know how a dollar may be so invested as to bring the largest

return in brain, muscle, and physical strength. She must remember that an unwise investment of that part of the income set aside for food may increase what will have to be spent for doctor's bills and medicines. On the other hand, a wise buying of food may lower the amount that needs to be spent on doctoring, and leave a little extra for books or recreation. In addition to her knowledge of food values and food standards, the good buyer needs courage to insist on getting the standard for which she pays. Some household leaks are due to timidity about returning things that are wrong, or mentioning the fact that a purchase was over-weight or short weight.

Success as a buyer depends much on knowing where to buy. In some communities the grange store saves its patrons many dollars. Cooperative or club buying of food supplies is beneficial to its members, for by alternating in taking and delivering orders, the club members are thus enabled to get fresh goods in any quantity desired and share in the profits of wholesale buying. But even where there is no grange store, it is possible to have cooperation, with mutual benefit, between local dealers and buyers, if buyers can be confident that the local store will give them as good value as they can get elsewhere, and the storekeeper can be confident that if he does his part all the local trade will come to him. Either is helpless without the other. The housewife must send away if by so doing she can get better prices and better goods. The storekeeper can not afford to carry a large stock if he is in constant fear that local buyers will be tempted by glowing advertisements of food bargains to do their buying at a distance. Sometimes the storekeeper, who naturally knows many business houses by reputation, could save local buyers from loss and disappointment in getting so-called bargains in canned goods. People often put up with inferior articles of both food and clothing sent from a distance because it is so troublesome to return them.

A certain local dealer made this offer to a group of households situated miles away from freight or express office: If they would combine to make it worth his while to make the trip, and would do all their buying through him, he would deliver their groceries to them at the wholesale rate plus 10 per cent. This

was found to work well in that particular locality. There is no rule that applies everywhere, but in any community a get-together meeting of local dealers and local buyers would help to solve the problem.

Greater cooperation between buyers and dealers would often help in deciding when to buy. A dealer will say to a good customer: "If I hear that sugar is going up, I'll let you know in time so that you can get a barrel at the old price." He will not trouble himself to do that for a buyer on whom he can not depend.

Is it economy to buy in large quantities? In large villages and cities where varieties of food can generally be purchased, it is not so necessary. But the housewives living on farms or far away from markets, find it more of a problem to supply their families with the necessary variety and are obliged to buy in large quantities. If this is to be economical, it is essential to have suitable storage room, so that the quality of supplies will not deteriorate. If the home is blessed with storage space that is dry, properly ventilated and free from pests such as insects, mice, rats, etc., it is good economy to buy in quantity such supplies as sugar, cereals, soap, canned goods, dried fruits, apples, and many of the root vegetables. The farmer's wife should have an abundance of the three last named from the orchard and garden.

One may be an economist in the matter of purchasing, and yet be extravagant in handling, storing and using of food after it is brought into the home. It is the small wastes or little leaks in the kitchen that are expensive. These little extravagances taken separately do not appear to amount to much, but when taken in the aggregate, make up a great loss. For instance, in cooking rolled oats, or some other like article of food, the housewife who knows the tastes of the different members of her family can calculate very accurately the amount to prepare. If in a family of five persons enough is cooked for six, one helping is very apt to be wasted. When repeated five or six times, enough has been wasted for one meal for the whole family. To prevent waste from errors in calculation, wise cooks use up the left-overs in many different appetizing ways. Rolled oats, cream of wheat or corn meal are all good fried or made up into muffins. Left-

over meats can be served in dozens of different ways besides the familiar hash. Vegetables make good salads, soups and vegetable hash. Whatever use is made of left-overs, it is not economy to keep them many days and have to dispose of them in the end because they are spoiling and perhaps tainting other things. Neither is it economy to use a quantity of expensive material just for the sake of combining it with a small quantity of left-over food. A bread pudding is good, but it is not so cheap as is sometimes supposed. If economy in the use of left-over bread is considered, rather than the making of a very good pudding, there are other uses, such as mixing the stale bread with chopped meat for a meat loaf, or using the bread crumbs for scalloped dishes, griddle cakes, etc., which should be considered.

Another great waste of food is caused by its being contaminated by little organisms known as bacteria, yeasts, and molds. These microscopic forms of life, under favorable conditions, reproduce very quickly. They prefer the same kinds of food that we ourselves like best, and unless we succeed in making conditions unpleasant for them, they will help themselves to our food very freely. They cause it to mold, sour, ferment, or putrefy, according to their kind, thereby not only spoiling its flavor for our taste, but often making it dangerous to health.

These small but powerful organisms are to be found in even the cleanest kitchen, in sink, store-room, refrigerator, cellar, etc., but they flourish exceedingly well in places where dust, grease and food remnants are plentiful, and where it is dark and damp. Dust particles flying about act as air-ships for bacteria, yeasts and molds. Therefore the stirring up of dust by sweeping the kitchen just before bread-making or canning, or sweeping the dining room just before a meal, may result in a heavy loss of the food materials for which we have to pay so much.

Absolute cleanliness, brought about by plenty of fresh air and sunshine as well as by plenty of soap and water, is essential in the fight against these little destroyers of food. Shelves, boxes, cans and other containers should be thoroughly washed, dried and ventilated. The pantry, cupboard, refrigerator, or other places where food is kept, should be so arranged that they are easy to keep clean. Cracks in pantry shelves should be filled

with putty, plaster of Paris, or sawdust mixed with glue, since a crack is a place impossible to clean. Left-over bits of food should be kept covered, and should be promptly disposed of if they show the least sign of spoiling. In selecting a refrigerator, choose one that is plain in finish outside as well as easy to clean inside. The scrolls, leaves, and other so-called "ornaments" on refrigerator doors cannot be kept dusted, and are therefore good breeding places for bacteria and very accessible to the inside of the refrigerator where bacteria do much of their deadliest work.

"Food may become dangerous even before it shows outward signs of decomposition, for bacteria may, as they feed upon proteins, give off substances known as ptomaines, hardly to be recognized without laboratory apparatus, but some of which are very poisonous to man. Certain apparently mysterious cases of illness have been traced to such causes, and milk, fish, meat, cheese, baked beans, ice cream and other foods have been found responsible for 'food poisoning.'" Summer complaint is one of the common troubles caused by taking into the stomach food made poisonous by bacteria.

To insure the safety of the food supply, it is best to keep all foods such as cereals, sugar, dried fruits, etc., in tightly covered tin cans, or glass or stone jars. Flour bought in bulk in the fall of the year improves with age and can safely be stored for months, if kept under sanitary conditions in a dry, warm, well ventilated room. Two-quart glass jars make good containers for dried fruits such as currants, raisins, prunes and apricots. They are also good for rice, macaroni, tapioca, etc. Dried beef, bacon and hams will keep in good condition for some time if securely sewed in a good grade of cheesecloth bag, and hung up in a well ventilated room. If after cutting ham the remaining cut part, especially that part around the bone, is well painted with fresh sweet lard, it will add to its keeping qualities. Apples should be kept in covered barrels in the coldest part of the cellar that is above freezing point. Potatoes may be kept in boxes or bins in the darkest part of the cellar. Many of the other winter vegetables are better kept in the barrel pit in the garden.

Properly made butter may be kept sweet for several months in stone jars. After being thoroughly packed, the butter should

be covered with waxed paper, a layer of salt, a piece of boiled linen, another layer of salt and then the jar and contents capped with heavy paper tied securely over the top of the jar. Eggs can be successfully kept if packed in water glass.

In the summer time when there are plenty of vegetables and fruits, the surplus may be either dried or canned for winter use. Some people consider it a proper safeguard against loss to make use of one or another of the commercial preserving powders, but this is neither necessary nor truly economical. The effect on the health of eating fruits and vegetables preserved in this way is doubtful if not actually harmful. And with our clearer knowledge of what may be called "surgical cleanliness" in the process of canning, and of complete sterilization for all products and repeated sterilization for some, there need be absolutely no loss from spoiling. Many times meats are better canned than put down in brine. In the fall of the year when hens are not laying, it will be found profitable to kill them and put the meat into cans, rather than to feed them all winter and then use them for food.

The home and the family are the most important factors in civilization at the present time. The citizenship of the country depends upon the output of the home, and the health and happiness of that output devolves upon the efficiency of the cook in the home. It therefore behooves the housewife to give much attention, time and study to the selection, preparation and care of the food that she gives to the members of her family.

"We may live without poetry, music and art,
We may live without conscience, and live without heart;
We may live without friends: we may live without books;
But civilized man cannot live without cooks."

SELECTION OF FURNITURE AND DRESS

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The farmer who purchases as much improved machinery as he can afford is to be commended, provided his purchase really saves time, labor, and ultimate expense. The maintenance of soil fertility, and the upkeep and improvement of the dairy herd, with provision for their cleanly, comfortable housing is a necessity, if the farmer is to end the year with a margin of profit instead of with loss. But the center of life on the farm is the home and not the barns nor the fields. It is to be regretted that so often the house receives last instead of first consideration. The people manage to get on until the cows and horses have been housed in up-to-date buildings, and then they wait a year or more after that until enough money has been accumulated to remodel the house. The house should represent the best construction, comforts, and furnishings that can be afforded. This is more needed in the country than in the city, for the country home, because of its isolation, must in itself supply the family the greater part of its recreation, rest and enjoyment. Without these in proper proportion, life wears out quickly, and is not truly lived.

The first and best instead of the last effort should be spent upon making the home inviting and comfortable. There the farmer's family entertain their friends, and home ought to be a happy, cheery place for the gathering of the young people in the neighborhood. Whatever may be the relation of visitors to the home, whether they come as friends or as strangers, each will in his own way be affected by the manner in which the household has expressed its thought of home in the home surroundings. The stranger, looking for a place to live, will, before he decides upon his purchase, measure the life and prosperity of a community by its appearance of thrift and by its careful upkeep. The farmer who litters the barnyard with sheds, who allows weeds and brush to accumulate in fence corners and in the yard, who permits the house to go unpainted, and doors and shutters to sag on their

hinges, who neglects to provide proper kitchen drainage, so that the yard is both unsanitary and unsightly, fails to realize for the time being, at least, his true sense of citizenship. He is unmindful of the relation that a well kept farm bears to the community in which he lives.

The house which is truly pleasing to look at results from sound construction, not from the addition of ornaments. Its chief characteristics are simple lines and good proportions. Jig-saw ornaments and many gables are not recognized as essential to the beautifying of a house. The large house of colonial days possessed dignity and fineness of proportion, but it was built with a special regard to outer appearance, and was inconveniently arranged inside. The modern farm house is, first of all, compactly arranged for inside comfort, and then is soundly constructed to fit the plan. Such a structure, fitting as it does the comfort of the family, is bound to win respect.

The inside of the house may tell the personal story of the family even more surely than does the outside. Here again, simplicity and use are the key notes of good taste. The absence of cheap ornaments and useless furnishings, the presence of quiet rather than of gaudy colors, and the orderly arrangement of the needed furniture, create a charm with which show and flash cannot compete.

A piece of furniture should be carefully selected to fit the purpose for which it is intended. Just as in purchasing a horse, its good and bad points are considered from the standpoint of the work it is to do, so a chair, for instance, must be judged from the standpoint of its use. The work that the chair does is to hold a human body in a sitting posture with comfort and with stability. The points on which it must score are such as these:

Does it sit comfortably? Has it substantial bracing and strong legs? Is it covered by a shiny coat of varnish so easily marred that it will soon look shabby? Is it heavy or light to handle? Has it simple, flowing lines, adapted to the human body, or is it full of fat curves and ornaments? And last, but not least, is it such a chair in which the tired farmer or his wife, in working clothes, may snatch a few minutes rest without danger to its looks? Similar questions might be asked in purchasing any piece of furniture.



FIG. 322.—CHAIR SHOWING GOOD LINES AND SUBSTANTIAL CONSTRUCTION.

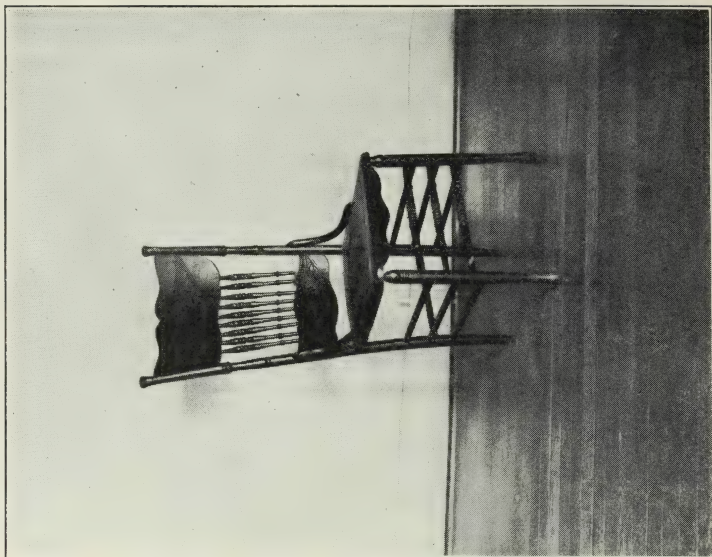


FIG. 323.—CHAIR WITH RESTLESS OUTLINE, CHEAP, ORNAMENTED AND ONE WHICH IS EASILY OVERTURNED.

The matter of wood finish deserves further consideration. Hard oil finish, with or without wax, or varnish rubbed down with powdered pumice stone and oil, will give a soft glow to wood. This finish not only looks better, but it is more durable than the brightly varnished furniture so abundantly displayed in most small furniture stores. The object of wood finishes should be to preserve and beautify the wood and not to make it shine. Wood is not a natural mirror. The cheaper wood takes these finishes as effectively as do the more expensive ones. If the people of a locality would continually show their preference for them, their dealer would soon supply the need.

Too many ornaments give a room a restless appearance. A jar of simple form, where the flowers in it, not on it, form the decoration, a book or magazine with good illustrations, some object which is rare, or which possesses real historical value, is far more effective than a table full of useless bric-a-brac. Collections of curios, shells, and stones are really valuable and stimulate educational effort, but such collections are not appropriate as ornaments. They should be neatly labeled, arranged in orderly fashion and stored in cabinets or in boxes. An easily accessible box or a drawer is a better place for photographs than to arrange them on shelves and tables.

The lesson of color selection may be learned directly from nature. Seen in the distance through the haze of the air, the background is a quiet grey, brown, or greyish green, with here and there spots of bright color, a cluster of flowers or a vivid tree, for accent. These bright colors soon vanish. They were not intended for permanence. We should soon tire of the autumn colors if they were with us always. We can apply the same suggestions of color to our homes. The background of a room consists of walls, floor and ceiling and we should use only soft colors on them. The ceiling reflects the light and should therefore be lightest of all, though no one would childishly suppose that it needs to be blue. The blue of the sky is created by the depth of the atmosphere and we could not reproduce it in a ceiling if we should try, even should we care to do so. Bright colors should be used in small quantities and never all over the walls, floor and ceiling.

Greyish yellow or tans on the walls of a room that faces toward the north or is poorly lighted are tones that add warmth and light. Soft greyish blue or greyish green on rooms that face toward the south are tones that add coolness and soften some of the glare. In selecting the color of the background, whether of paper or of tinted plaster, see that it lights well by artificial light as well as by daylight, and that the color is friendly with the rest of the furnishings. One should remember that deep blues are depressing and light-absorbing, that red is exciting instead of restful, and that bright greens are raw in effect and will soon fade. Above all, keep the background with the effect of plainness and flatness in pattern. Real roses and poppies do not grow from flat upright walls. A small picture of flowers in exquisite colors, contained in a frame, may be desirable, but flowers all over the walls of a room are tiresome. Medallions and spotty effects in wall coverings are to be avoided. Choose only papers having an all-over or a small repeated pattern or stripe. Pictures are ineffective against large figures or brilliant backgrounds.

The taste of each member of the family should be consulted as far as possible in decorating the living room, since all are to share it. In the hall and bedrooms more freedom for individual preference is possible and more pronounced colors may be used than in the living room, because they are seen for shorter intervals or only in passing. Like nature again, the color effect that does not last, or, in other words, the place we do not frequent much in daylight hours, may be brighter than the living room, but in any case, the same flat feeling should be sought for on the walls. The kitchen should be the cheeriest room in the house. Work seems easier in good looking surroundings. Rooms that adjoin each other should at least harmonize in color.

Fabrics should in general follow a similar principle of color selection, being soft in the effect of the whole. Too many fabrics, each of a different color, in the same room give a patchy look. Bright color may be used in a few pillows, or in small bits, in a mixed pattern, such as is frequently seen in rugs and upholstery. The lamp shades and the bindings of books can also be relied on for a note of color. Windows are usually built in straight lines, therefore curves of drapery tied back, do not follow the line of

construction of the window. Consequently curtains are more restful in effect if they hang in straight folds instead of being draped. Large flowered lace curtains belong in the same list with large figured wall papers. A portiere has its own excuse for being when it can be used in place of a door, to maintain privacy, or to keep away drafts. Rope and shell portieres answer neither of these requirements.

Floor coverings, like wall coverings, are designed to cover flat surfaces. Because they occupy the lowest and lowliest place in the room, they should be of unobtrusive pattern, and should not present a startling contrast to the walls and furniture. Naturalistic flowers are not an appropriate subject of decoration for a floor covering, and do not seem to lie quietly in place. In other words, the desired effect of flatness is lost. Huge medallions attract attention to the floor rather than to the room as a whole. Old carpets will serve as artistic and durable floor coverings when cut into strips and woven into rugs. The old-fashioned rag rug becomes an adornment when the number of colors used is lessened and softened in tone. Two or three tones of similar colors selected to match the prevailing color of the room, woven into a rag rug and used as a floor covering transforms a poor floor into a good looking one.

The same principles that govern the decoration of the house may be applied to clothing. Neatness, fitness to purpose, and simple taste are essential. After all, is it not true that the people whom we care for, and who care the most for us are the people in our own homes? They are the ones whom we most desire to please, who rejoice in our triumphs and sorrow in our defeats, who really appreciate us most, though, alas! the appreciation is too often unexpressed. The housekeeper who works all day in a slinky grey calico wrapper and dirty apron robs her family of the opportunity which they need, to see her at her best, and, like the man with the careless farm yard, is failing to live up to her citizenship as an American woman. Fortunately, in these days of crinkley seersucker which needs no ironing, of such fabrics as blue-and-white nurses' cloth or soft sateen which irons easily, laundering a dress is not a difficult job. There are many simple patterns for good looking work dresses which are as easily made and laundered



FIG. 324.—AN ATTRACTIVE, EASILY
MADE WORK DRESS.

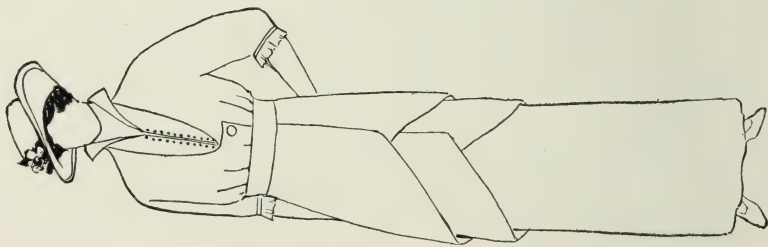


FIG. 325.—A DRESS WITH PLEASING
LINES, SUITED TO THE FIGURE, INCON-
SPICUOUS, YET ATTRACTIVE.

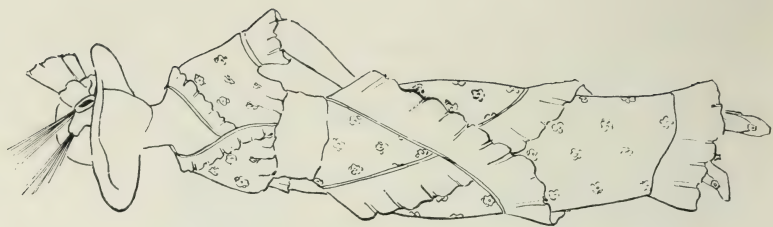


FIG. 326.—THE CONSPICUOUSLY FIGURED
MATERIAL AND THE OVER-ABUNDANCE
OF TRIMMING WHICH IS SO PLACED
AS TO DIVIDE THE FIGURE IN AN UN-
BEFITTING WAY, MAKE THIS AN EX-
AMPLE OF POOR TASTE IN DRESS.

as was the grey calico wrapper. The woman who is too busy to get away from home frequently will often find that a good bath and a clean dress are as restful as going on a visit.

The same softness of color with absence of conspicuous figures is as pleasing in dress as in home decoration. Standard colors that are inconspicuous, such as navy blue, soft browns or greys, in material of as good a quality as can be afforded, should be chosen for one's best dress, if such a dress can be bought only occasionally. They are, in fact, always the wisest to select. Too bright colored a dress or conspicuous combinations of color that attract attention, are not in good taste and make over at a disadvantage, as they usually fade. Bright color in dress has its place in small trimmings, or for the wear of little children and young people, and should be selected and arranged to show off the wearer's face and figure, not to attract attention to itself. Pictures of actresses or of famous beauties are often pictures of elaborate gowns or of head dresses instead of portraits of the wearers themselves. The conservatism of the farmer's wife as regards the present day styles may become, if she chooses, the saving grace of the country community. She can be trusted not to choose such extremes as hobble skirts and transparent effects.

A large expenditure, either for dress or for home decoration, is by no means a measure of good taste. The dress or the article of furniture that appears to be designed for the express purpose of showing off its money value may without exception be branded as neither decorative nor refined, while the less costly article may be infinitely more desirable if wisely selected for its purpose.

To sum up, honesty and self control, the elimination of the useless, and the selection of a quiet color scheme, with bits of brightness here and there, are essentials to good decoration, whether of the home or of the person.

"When a woman finds herself wondering if after all it is worth while to continually fix up oneself and one's home, it will give her new grasp to pause and look back into her childhood, recalling the things she longed for and had not and the little things that so easily pleased her, and then with new courage she can face afresh her responsibility to those dear ones whose memories are now in the making."

(Miss Mills is a farmer's daughter who is a graduate of the Home Economics Department of the New York State College of Agriculture, Ithaca, New York. The Département does not at present equip its students to take up decorative work as a profession, but aims to train them, by the study of color and design, to express themselves becomingly in their homes and clothing, believing that every woman may extend her influence to those about her by living tastefully.)

SELECTION OF FOOT-WEAR

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In mentioning the essentials of good taste and true economy in dress, we sometimes overlook the importance of making the shoes conform to the rest of the costume, whether one be dressed for work or for play. The effect of the most tasteful gown may be spoiled by a shabby pair of shoes, just as the most appropriate work dress may be made to look less comfortable if worn with shoes that cause their wearer to wince at every step. Sometimes the physical necessity of having to put on one's oldest shoes with one's best dress comes as a result of false economy in trying to get along without proper shoes for work. The wise selection of shoes is therefore a subject in which everyone should be interested, since so much of our comfort depends upon it.

Three things should be considered in the proper fitting of shoes: length, width and arch. In regard to length, it is generally understood that too short a shoe is the prime cause of corns, bunions, and enlarged joints, but it is not so commonly known that too long a shoe is equally harmful. Too much length allows the foot to settle away from the heel of the shoe, thus causing an uneven wearing down of the heel. When this is done, the ankle bone is thrown out of position and the cords and muscles are strained and consequently weakened. The perfectly fitting shoe should be of a length to allow one-quarter inch space between the end of the great toe and the end of the shoe when one is standing, provided the ball of the foot is exactly over the ball of the shoe.

When the proper length is found in a shoe which fits the arch of the foot, there is little need to worry about the width, for a shoe too wide will not fit the arch, and one too narrow will not allow the ball of the foot to come far enough forward. The arch of the foot, that delicate structure which bears the weight of the body, should in every case be supported by the arch of the shoe.

One can readily see that where one person requires a low-arched shoe and its accompanying low heel, another may need a high-

arched shoe which carries a higher heel. The effect upon the general health when the condition of the feet is not normal is not commonly understood. Many who seem to be suffering from nervous breakdown might be relieved by expert attention to the feet. A case in point may be quoted:

A young man employed in an office failed in health until his friends became much alarmed. Tubercular symptoms, such as wasting flesh, loss of appetite, and a hacking cough increased until he frequently fainted at his desk. Local physicians were puzzled by the case until a nerve specialist declared that the whole trouble was caused by fallen arches. As soon as relief was obtained by proper appliances the patient rapidly regained his lost flesh, and his condition became normal. Oddly enough, his feet were not painful until treatments for lifting the arches began.

Positive illness, nervousness, and bad temper in children are often the result of poorly fitting shoes. Sometimes appearance, comfort and durability are sacrificed for a matter of price. One should realize that there is no economy in purchasing a cheap shoe. As the size of the foot increases and a growing child comes to need an adult size with its corresponding increase in price, parents often try to keep to the smaller shoe rather than pay the large difference in cost. This is always a mistake.

The style of shoe selected should conform to the service required. A flexible welt sole is best for a walking shoe, as it allows the sole to bend with the foot, and so gives greater ease in walking. For housework a medium weight sole and rubber heels are best. Felt or rubber soles keep the feet too warm and make the flesh tender, while a soft leather sole lets every unevenness be felt. Throwing the weight of the body back on the heels, whether they be rubber heels or not, is bad alike for the shoes and for the feet and body of the wearer. It is real economy to have more than one pair of work shoes at a time, so that tired feet may be rested by a change of stockings and shoes. This practice will make the shoes wear longer and save the feet much weariness and pain.

Regarding the care of shoes, it is well to remember that it is always a detriment to leather to get wet. Never put shoes near the fire to dry, as wet leather burns much more readily than dry. Stand the wet shoes in a warm room and let them dry slowly. An

application of oil or mutton tallow rubbed into any dull leather will soften it and tend to make it waterproof. There is a feeling that the use of shoe-trees is only for people who spend much money on clothes. As a matter of fact, the more carefully we must count our dress allowance, the more important it is to prolong the usefulness of whatever we buy by proper care. It is the woman of limited means who can least afford to hang her dresses away, unbrushed and unmended, by one arm-hole, instead of on the hangers made for the purpose; and who can least afford to let her shoes get to looking old before their time. The use of shoe-trees is economy because it keeps the shoes shapely as long as they last.

HOUSEKEEPING AND HOME-MAKING

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Farmers' Institute Lecturer

"Does the housewife of to-day work as hard as did the housewives of former generations?" No question is more often debated than this. It is contended that while the women of past generations did more manual work than we do today, that after all their problem was very simple compared to ours, because their duties were bounded by their own four walls. In other words, the contention is that while our great-grandmothers may have excelled the women of today in the manual skill required in the trade of housekeeping, they neither acquired nor needed the mental training necessary to the profession of home-making as we understand it today. How often we hear the defense: "The women of today cannot be expected to work with their hands as their great-grandmothers did, because they have heavier responsibilities to face; they have come to see their broader opportunities!"

Are we not making a mistake in taking as a brand-new discovery the fact that true home-making, like charity, while beginning within our own four walls, must on no account end there? The wider sphere of usefulness was recognized, even if not so named, long before our day.

If we but go back far enough,—to the pioneer days when a woman's horizon, according to present-day ideas, was bounded by her dishpan and her cookstove, we find her not only cooking, baking and brewing, spinning and weaving and fashioning clothing; we find her also, very simply, as a matter of course, and without much talk about it, doing the larger duties which we are apt to think of as peculiarly belonging to the present enlightened day. We find her, "in a way at once religious and intellectual", occupied in the mental, manual, and spiritual education of her children; intent on the guidance of her household helpers, and competent, through mastery of every detail of the work required of them, to direct them effectively. We find her fighting disease

according to the best light of the medical science of her day; nursing the sick, feeding and clothing the poor. We find her attending divine worship, not for an hour, but for a day; not on soft cushions in a heated church, but on a hard bench with only the meagre barrier of a soap-stone interposed between the cold floor and her feet. Yet we find her singing, "A charge to keep I have", more often than, "Art thou weary, art thou languid?" Self-pity is not a part of her creed. She finds time and strength for the home merry-makings, though lamenting, as we do today (I quote from an English book on festivals published one hundred years ago) "that in their amusements the country folk incline to ape the ways of the city."

Verily there is nothing new under the sun. When we point with pride — as we ought to do — to the growth of our schools of domestic science, to the salaries earned by women who have been trained to teach the value of wiser feeding, better housing, more joyful work and more efficient living, we are but admitting that the gifts which for a generation or two fell into disgrace, and were thought of as old-fashioned, homely and hum-drum, have once more come into their own. Allowing for the inevitable change of methods from pioneer days, the woman who would be most successful today must qualify along the lines for which her great-grandmother was famous. She must be essentially a home-maker, whether or not she ever calls a particular house her own.

In pioneer days, individual home-makers met within their own homes many duties which we of today confront as municipal affairs, just as they carried on industries which today we speak of as commercial enterprises. But according to the methods and opportunities of their day, those women met their responsibilities. With the opportunities which we have today, are we meeting our responsibilities as well? And if we are not, what is it that has side-tracked us?

The sturdy, uncomplaining strength of pioneer days was not developed in the generations born after living conditions became easier. They lost the stern joy of work for work's sake, and, in their desire to make life easier and better for their children, they overlooked the fact that life is made easier, not by less work, but by better working conditions and greater efficiency. Their

love was "of that poor fibre that spares the wholesome salt of tears in the bread of life". Accordingly, when little by little one home industry after another was carried outside the home; when it was recognized as economically necessary that the families of a neighborhood join together in hiring a teacher to give to their children collectively what the mothers had given individually before; when even the children's religious training was transferred from the home to the Sunday school; the daughters and granddaughters of the pioneer stock were not true to their inheritance. They failed to see that hiring others to do their work for them did not relieve them of the responsibility of seeing that the work was properly done. The Sunday instruction was not supplemented in the home, and its methods were not questioned. Schools were not visited except on exhibition days. When the teachers "boarded round" there was still opportunity for close acquaintance between teacher and parents, but as this arrangement lapsed, the last link in the parent-teacher association was, for the time, broken. Teachers, good, bad and indifferent, came and went; health conditions in the school became indifferent, bad, and worse, but the housekeeper of that day had not realized that her home-making could no longer be bounded by her own four walls, since so many of its duties had been carried beyond them.

For lack of that realization, she allowed her life to narrow to the mere routine duties of house-keeping. She has lost the joy of creative work which had been her mother's portion in the manifold home industries, and with it had gone much of her mother's deft touch and keen eye, whereby work had been so easily turned off, and weighs and measures so accurately guessed at. She had not yet achieved the scientific understanding of the why and wherefore of household processes toward which we are groping today. So between the inspiration she had lost and the inspiration she had not yet found, her work became a daily round of drudgery: to fill hungry mouths without regard to the building of healthy bodies; to wage war against dust by excluding air and sunlight; to sit sewing in close rooms, blind and deaf to the beckoning and calling of God's out-of-doors. What could the result be except a sense of martyrdom?

Lacking the association with youthful minds and new ideas which her mother had enjoyed in educating her children, she became old before her time, and lost the ability to play with her children because she no longer worked with them, no longer spoke their language nor thought their thoughts. A great gulf opened between mother and children. The mother, struggling along alone with duties which the children should rightly have shared, denying herself the help they should have given, denying them the training and discipline which was their right, grew only the more determined to spare her children the drudgery she was undergoing and to leave them free to have a good time. Finding the mother always too weary to join in their fun, the children came gradually to go outside the home for entertainment. Hearing no song from their mother's lips, their idea of music was limited to its cheap imitation as heard in the dance hall.

This is a gloomy picture, but its very gloom foreshadowed the dawn of a better day, and that day is the one in which we are privileged to live. The leaven of discontent has begun to work. Women have awakened to the fact that they have been wasting their powers. Their first instinct was to escape the treadmill by simply *running away*, ignoring any duty except their personal emancipation. Some of them, in their search for freedom, have run far afield, but the running has cleared their brains, and those who are pausing to breathe and look around are beholding a new vision of their once despised occupation. They see the round of simple duties in individual homes as links in a great chain that makes the strength of a nation. They see that public health, prosperity, and progress are only good housekeeping on a larger scale. They see that housecleaning is as necessary and effective in community, state, and nation as in our own shed.

Boards of health are largely helpless without the cooperation of every separate home within their district. There have been communities where the quarantine sign was taken as an invitation for neighborhood visits; where vaccination was opposed, where school buildings were neglected, and where housewives let their duty end with screening their own houses against flies and mosquitoes instead of helping to exterminate them from the en-

tire neighborhood. Such communities failed to commend themselves to home-seekers, and fell behind in the procession. But when the home-makers arose in their might, when the local paper announced that the village improvement society was going to "clean house," straightway a new self-respect was born, and the community took its place on the list of desirable localities in which to settle.

School boards and teachers are handicapped without the three-fold cord of parent-pupil-teacher association to guide them. Hospitals and asylums are trying, at vast expense, to care for the state's incompetents, but they are only dealing with the *symptoms* of the evil. The home-makers of the land, and they alone, are able to cope with the evil itself. Their growing knowledge that it is the right of the nation's children to be well bred, well born, well housed, well fed and well trained is slowly but surely rearing better citizens.

A recent magazine article, entitled, "Every woman her own Burbank," suggests how we may take apparently worthless trees and make them bear new and wonderful fruit. Just as convincing an article might be written entitled, "Every woman her own wizard," to show how the health, brains, and disposition of a family may be improved by wise feeding; how a knowledge of food values may increase the purchasing power of the income, and how a knowledge of the laws that govern cooking processes will transform dull duty into joyful creation. A woman may well feel herself "her own Burbank" as she plants her yeast crop in a field of dough, knowing that if the soil is good and rightly prepared and if no weeds are allowed to grow she will have a good "catch," and reap the reward of her planting in a light, fragrant loaf.

Thus our new vision reveals home-making as a task full of possibilities, serving a high purpose, and lining us up with the great army of men and women who are working for world betterment. Such a task is surely worthy of the most careful study and training. It is worth doing not only well but joyously. The wise home-maker of today no longer belittles her chosen work to her child,—no longer leaves the child untaught in the

fine art of housekeeping, but trains the little hands to be skilled in the kitchen at as early an age as at the piano and encourages the eager "why?" that keeps a task from growing stale. Best of all, through renewed association in work, the home-maker of today regains her rightful place as an intimate in the child's play. In so doing she restores to the home the power it represented in pioneer days and widens the circle of its influence beyond what was then possible. The old-time sense of permanence returns to her, and with it the desire to entrust to her boys and girls a heritage that shall always speak of home: home songs, home books, home customs, home festivals. She strives to make the world a better place for her children, and to equip them in turn to leave it better than they found it, through the power of a home that shall be not merely a family center, but a community center of health, happiness and cheer.

WHAT BOOKS SHALL WE BUY?

REV. FRANK P. HARRINGTON, Pascoag, R. I.

Advice about books is easy to give, difficult to follow and likely to be unsatisfactory to the recipient. No two persons can think alike on any subject, and the effect of a book varies according to the viewpoint of the reader and the amount of intellect and interest he brings to the reading. In giving advice, however, most of us work overtime, and except in recommending a remedy for a cold, there is nothing in which we take more delight than in urging upon the notice of our friends the books that we have found enjoyable. Nor is it strange, when we consider that the pleasure derived from a good book is one of the greatest in life, that we should be eager to share that pleasure with others.

Nevertheless it is wise to go slowly in accepting advice from all sides in regard to the reading, and still more in regard to the *buying* of books. With the limited time and money that most people have to spend, as compared with the vast number of good books on which time and money might profitably be spent, it behooves everyone to consider carefully how to procure what will best fit his individual need.

Realizing this, the aim of the present article will be, not to recommend particular books except as illustrations, but rather to offer a few suggestions as to the types of books most likely to furnish lasting benefit and enjoyment to their owners.

After the Bible, which is of course taken for granted, I should give first place to books that will answer questions concerning topics about which the world is thinking and talking. The inquiring minds of children, eagerly desirous of knowing more about every conceivable subject, continually put us beyond our trumps. Every newspaper contains allusions to places and things of which we have no knowledge. Therefore, unless we are willing to settle down into dull and lazy ignorance, books of reference are imperatively necessary to us.

The Bible itself should be supplemented by a reference book or concordance — an alphabetical index of the words of the Bible, telling in what verse of the Bible they are found, and what verses immediately precede and follow. The purchase of a teacher's Bible containing a concordance, or a concordance by itself will serve to answer those countless questions as to whether this or that saying or proverb is in the Bible or not.



FIG. 327.—A FEW BOOKS, BUT THE "RIGHT" ONES (LIVING ROOM OF IDA S. HARRINGTON).

A Webster's illustrated unabridged dictionary contains a vast amount of information beyond the meaning and spelling of words.

Every Man's Encyclopedia, in twelve volumes, costs only \$4.20 and is an education in itself.

Bartlett's Familiar Quotations is needed to verify or trace literary allusions of all kinds.

Brewer's Dictionary of Phrase and Fable will explain the origin and meaning of many sayings which we constantly use without stopping to think how they started. It explains, for instance, that

the saying "to sleep like a top" is derived from the fact that when peg-tops and humming-tops are spinning their hardest, they become so quiet and steady that they do not seem to move, and are said to be "asleep."

For actual and prospective voters, male and female, a book containing the constitution, and an outline of the machinery of the national government; a similar one for the state; and a handbook of politics are good at all times, and are especially desirable at election times.

An atlas of the world will give new meaning and importance to the happenings recorded in the newspapers.

The home library should not fail to include a general history, a history of the people of the United States, and a history of the state of New York.

In poetry, a collection like Bryant's Library of Poetry and Song, giving the best work of many authors, should come before the purchase of the complete works of any one author. In it we shall find most of our childhood's favorites, and a vast number of others that are very commonly quoted. I know of no equally good collection of prose within the limits of a single volume, but there are more expensive collections of the world's masterpieces, etc.

When it comes to fiction, I should make these hard and fast rules: Don't read anything that will not bear reading aloud, and don't buy anything that will not bear reading at least three times. The best time to buy "best sellers" is about ten years afterwards, if they are still holding the market.

Books that appeal to children and grown people alike are a great mutual bond, and reading aloud is a sure test of whether a book is worth while, or whether, even though it is not bad, it is wishy-washy and worthless. "The Heart of the Ancient Wood", by Charles G. D. Roberts, is a very breath of the fragrant forest, and such books as Kenneth Graham's "Dream Days" and "The Golden Age" never lose their interest. The Five Cent Classics, published by the F. A. Owen Publishing Company, Dansville, N. Y., cover the subjects of nature study, history, biography, and geography, besides much of the best in prose and poetry.

Technical books should be bought with a realizing sense that while certain foundation principles always hold good, yet the new discoveries in science are coming so quickly that what is true today may be questioned tomorrow. The housewife should have one good book on the general subject of home-making, such as Maria Parloa's "Home Economics", one good up-to-date cook book that includes instruction in food values and the underlying principles of food preparation. Fannie Merritt Farmer's "Boston Cooking-School Cook Book" is a good example. There should be a book on invalid cookery, a simple manual on sanitation, such as Marion Talbot's "House Sanitation", and, for constant reference, a book that will help the housewife to conserve her energy, such as Annie Payson Call's "Power Through Repose" or Anna C. Brackett's "The Technique of Rest."

Besides a few good books of this nature, the housewife would do well to invest in such publications as those of the American School of Home Economics, Chicago, Ill. The pamphlet on "Free Hand Cooking" may be obtained for ten cents, and the one entitled "The Up-To-Date Home" (a report on labor-saving devices), costs fifteen cents. In addition to these, any resident of New York State may have for the asking the bulletins of the Cornell Reading Course for the Farm Home, the bulletins published by the Department of Agriculture at Albany, and the farmers' bulletins published by the U. S. Department of Agriculture at Washington, D. C.

The only expensive books mentioned in this article are the Webster's Dictionary (\$10) and the Encyclopedia (\$4.20). The whole list might be purchased for from fifty to seventy-five dollars. Until one has by degrees acquired some such cornerstone for his home library, all offers from the book-agent should be turned down kindly and courteously, but with firmness. Aggressive and confident as he is, resist him and he will flee from you. He may offer you a book you want; under his presentation you will surely *think* you want it; but you can't afford to get what you want until you have first secured what you need. The secret of the agent's power is not so much the worth of his books as his eloquence and skill in presenting them. When he begins, we are

very firm. But as he proceeds, our firmness melts away and it is chiefly because of the assistance that he gets from a traitor within ourselves. Every one of us has a craving for books, and especially a craving to own them. And unless that craving is being satisfied by the gradual purchase of books that we need, it will rise up within us and finally dominate us to such an extent that we become helpless. And if anyone who reads these lines is paying a reluctant fifty cents or a dollar a month on a twelve or fifteen dollar set of books which he has begun to suspect he will never read, let him not blame the agent's glib tongue. In spite of all present resolutions, that undying craving will again and again lead you into the same trap, unless you release it from the danger of such chance happenings by putting it in the way of a right gratification. The only remedy lies in a gradual and systematic purchase of the kind of books you really need.

The fifty cents or a dollar a month proposition is a snare and a delusion. The sum total will be the same, no matter over how much time you spread it. If the idea attracts you, get a small savings bank and make payments of fifty cents or a dollar into that at stated intervals. Then you will find yourself in funds every now and then for the purchase of a book that, instead of being an eyesore, will gladden your heart every time you look at it.

MUSIC IN THE HOME

ETTA E. MONTGOMERY, Silver Creek, N. Y.

Farmers' Institute Lecturer

"Music is a prophecy of what life is to be, the rainbow of promise translated out of the seeing into the hearing."

When it has become the tendency of a people to judge value chiefly as it relates to finance, as we are generally doing in this day of commercialism, is it not time for us to direct our thoughts into another channel, giving more consideration to those important phases of life which have to do with moral, intellectual and physical development, artistic appreciation and greater sympathy?

It is our privilege to discuss one of these phases of life under the title of "Music in the Home."

We recognize, first, that every home needs music in it. It is to the home that we bring our cares and our anxieties; should we not also bring there our songs and our rejoicings? Having the power to wash away from the soul the dust of the every day life, music allows one to rise above cares which otherwise might oppress.

More and more are we realizing the compelling influence music has upon our mental and physical well being; a broader vision has given us to see how closely allied are healthful thoughts with a healthful body. One writer has said, "The habitual use of vocal music by a family is an almost unfailing sign of good morals and refined taste."

The need of music has been felt since the beginning of the world, when the family of stars sang together at the creation. Coming down through the centuries we read in Paul's writings to the Ephesians, "Be filled with the Spirit; speaking of yourselves in psalms and hymns and spiritual songs — singing and making melody in your heart to the Lord."

Music in the home acts as a moral tonic, and I can hardly imagine a true home without it. It is the balance wheel for the family, and a healthful exhaust valve for the exuberance of youth.

Childhood holds the greatest opportunities for training of any time during life, and impressions made then are never forgotten. Consider what it means for the future of a child to be schooled in a love for good music so that cheap music, with its accompanying and corresponding grade of amusement, is passed by as uninteresting. Think of the ability acquired to make a place for oneself among desirable associates; of the opportunity one has for influencing others, cheering the sad and rejoicing with the joyful.

Especially would I speak of vocal music. Not alone should one train the voice for singing; the speaking voice should also be trained, yet how much more time is spent in training the voice to sing than to speak. The greatest help toward learning to sing rightly is first learning to speak rightly.

We express every emotion in the speaking voice whether we will or not. Are you angry? — your voice indicates it. Are you happy? — your voice makes it known. Are you frightened? — your voice proclaims it. Even one's state of health may be detected by the quality of the voice. Just as the tension of the body reacts upon the voice, so the tone of the voice reacts upon the mind. Our ability to overcome anger or excitement is largely in proportion to our ability to make the voice low and flexible.

Some voices invite confidence while others repel them. A sensitive child, highly susceptible to the influence of tone, may be and often is kept from confiding in a mother whose voice is sharp and unsympathetic. I have seen children, about to seek advice from a parent turn away to follow their own inclination because there was a fretful sharpness in the parent's voice. Go into a home where the members of the family are pleasant-voiced and you will generally find there refinement and harmony.

Soonest through music may we unite the family in a common bond of sympathy. May we not realize to a greater extent the meaning of life through its music?

"See deep enough and you see musically; the heart of Nature being everywhere music, if you can only reach it."

Where one can secure the aid of a good teacher, the problem of voice training is greatly simplified, but where this instruction cannot be secured the problem is not impossible of solving.

Three things are essential to the right study of voice training — (1) position of the body, which means that an erect position should be maintained; (2) breath control — that is, the breathing should be deep enough to strengthen the diaphragmatic muscles, for the power of the tone is at the waist line; (3) tone placing, which is bringing the tone to the tips of the teeth. The muscles of the face and throat should be relaxed to aid in making the voice vibrant and clear. Earnest practice of these few rules will afford present improvement besides laying the foundation work for future study. It will also overcome that common defect in the American woman's voice of pitching the tone too high.

In aiming to make the voice low and pleasing care should be taken not to make it weak and lifeless. A tone may be clear and vibrant without being loud or harsh.

Air laden with dust or smoke affects the vocal cords; talking against a noise will strain the voice; the quality of the tone will be destroyed more quickly by colds than by any other one thing, except the use of liquor. Talking for any length of time in an over-heated room will weaken the voice. These are some of the things to be avoided if a beautiful voice is to be acquired and preserved.

The importance of selecting good music must be realized. What is good music? It is music which has stood the test of time, or such music as will inspire us to live worthier lives and fill us with higher ideals. One may not be able to enjoy classical compositions, but there is plenty of elevating music which is simple and melodious, to be found among the old as well as the new publications. Even so-called "rag time" is not so black as it is painted. "Rag time" is merely a popular term for an arrangement of notes which puts the musical accent on a part of the measure which would otherwise be unaccented. It has the charm of the unexpected, just as an original turn of speech has in conversation. Musicians give "rag time" the more dignified name of "syncopation." Much of it is legitimate music. Some of it might be called syncopation carried to a frenzy. Extremes are a detriment to everything, and one does not cultivate frenzy in music any more than in mind, but the real harmfulness of the

“rag time” songs of the day lies in the words to which the music is set,—such words as one would be ashamed to *read* or *say* aloud, but which too often are *sung* aloud without any sense of shame. To the influence of this sort of song do I attribute the coming of the exaggerated costumes and the objectionable dances of today.

Victrolas and graphophones have made it possible to have music of the best in our homes, and it is the duty of every parent to insist that none of the trashy, unclean songs are heard.

We each aim to make our homes the most perfect social center for the family. To do this means bringing into the home only those things which are elevating and refining.

“All one’s life is music if one touches the notes rightly and in tune.” No other art has been so honored as that of music, for it was chosen to bring the good tidings to earth when the angels sang, “Peace on earth, good will to men.”

Let us have in our earthly homes such music as shall not make us ashamed when, in our Father’s home, we join the heavenly choir around the throne of God.

MUSIC IN THE DAY'S WORK

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Farmers' Institute Lecturer

Have you ever felt, toward the end of a long, hard day, as though there was but one sound in the world — that of the clock remorselessly ticking away the minutes? And have you ever at such a time become suddenly aware of a voice singing somewhere in the house? Is it not true that the sound has a magic power to relieve the tension? Instead of continuing to work in jerks, grimly trying to keep ahead of the ticking of the clock, we find ourselves falling into the rhythm of the song. It is quite possible that at first we try to resist its power,— to sigh, "Well, I'm glad somebody feels like singing;" we may refuse to surrender sufficiently to sing aloud, but in spite of ourselves something will begin singing inside us; we shall find ourselves working in tune, and the burden of weariness will be lifted. Just as a company of soldiers, stumbling along half dead through dust and heat, becomes inspired with new life at the first note of the band, so the weariest toilers are carried out of themselves by a burst of music.

"Whistle to keep your courage up" is a piece of advice familiar to us all, and it is more than a mere catchy saying. It is a practical truth that you can keep up your strength and courage if you work to a tune in a way that is impossible if you don't carry the spirit of music in your heart. This spirit of music is not reserved for trained musicians nor for those whom the world calls musical. Everyone has enough of it hidden away to lighten and glorify her work if she will only bring it out. The pleasure we give and gain through music in our leisure hours is as nothing to the inspiration we get from it in our working hours, whether we sing aloud, hum, or only *think* music.

It is all wrong to plead: "But I have no voice,— I can't sing", just because we lack the talent or the training to impress an audience. No mother ever lived who could not croon a lullaby to her baby! As she bends over the tiny form, every vestige of self-conscious doubt as to whether she can sing is swept away

by the unfailing mother instinct that bids her consecrate the beginning of a new life with song. With its first lullaby, every baby comes under the power of music, and we as mothers have no right to let that power wane. It is a heritage that cannot be withheld if we want our child to live his life bravely and happily.

The people who say, when asked why they have given up their music, "Life has been so sad that I can no longer sing", are cutting themselves off from the very thing that would make life happier. The mother who "has had to work so hard that she could not keep up her practicing" has forgotten that a song in the kitchen speeds the work and puts us in tune to make our leisure hours a chain of happy memories for our children instead of a mere cessation of work for ourselves.

Just as the lullaby soothes the tiny baby, so music meets our need at every step of life's way. It calms the child grown fretful after a strenuous day of play as surely as it strengthens the weak, inspires the disheartened, and exalts the joyful. A teacher and his wife gave up a much-needed summer vacation in order to buy a victrola for their home, because they were sure that even then, when their children were mere babies, the effect of music during that restless half-hour before the children's bed-time, meant more real and lasting benefit to the whole family than the summer trip would have brought. I know a family of children who could sing before they were able to talk. Sitting at the piano with a baby in her lap, the mother would play and sing some simple tune, pausing at the end of each line for the baby voice to supply the last note. As these children grew older they accompanied all their little tasks with song; they chanted the happenings of every day to favorite tunes; and if they wanted to make themselves heard at a distance they more often sang than called what they had to say. When the small girl of two was sent to call her father to dinner, she was never content unless she sang the summons. If it meant a trip upstairs, the combined effort of carrying the tune and her own fat self safely up was an undertaking punctuated by many gasps for breath and fresh starts. The whole family felt a sense of achievement when the final triumphant: "Come to dinner, Father dear!" proclaimed that the baby had arrived.

Watching the development of these children and others like them, who take harmony and rhythm as a matter of course, I have been struck by its effect on their manner of carrying themselves and of performing their work. Not one of them is a musical wonder, but with all of them music has always been as much a part of work-time as of play-time. It has seemed to develop in them an ability to assemble all their faculties promptly, as if to a bugle-call, whenever there is anything to be done. There are no false starts and awkward motions, as is the case when hands and feet are slow to obey the brain. One girl has the ability of ironing with an iron in each hand. Beginning at the center of a napkin or table-cloth, she works one iron toward the right and the other toward the left, and does it so skillfully as to practically double the work of an average person in a given time. I have seen another, at times when every second counted, going about a diningroom with a pitcher of water in each hand and filling two tumblers at the same time. They have favorite tunes by which they sweep, mop, or dust. They find it more interesting and just as accurate (after a little experimenting) to time the beating of a cake by so many verses of a song than by the clock.

In one family there is a tradition that the bread is never so good as when the kneading of it is done to a chorus of college songs. Undoubtedly the hilarious gathering of singers in the kitchen has its effect on what would otherwise be a solitary task. A further result has been that the kneading of the bread has come to be done "turn and turn about" instead of being left solely to the mother.

In a girls' industrial school, one of the required tasks was the polishing of the dormitory floors, two girls at a time being assigned to it. It was not a popular occupation, until one of the girls was inspired to propose that they make a sort of a drill of it. They persuaded someone to play on the piano for them, and put ten girls at the job instead of two. At the first chord of music, the row of girls, standing "at attention" with brushes in their hands, dropped to their knees and in exact time to the music polished their way across the floor. At another chord, as they

reached the end of the room, they rose and stood for a moment, when a third chord signalled them to begin the return journey to their starting point. Doing it to music had so dignified the homely duty that it was thought worthy of a place on the program at the school exhibition given in the gymnasium at the end of the year. At this time twenty girls polished their way across the gymnasium floor and back again, and the floor they polished was no brighter than their faces.

It is difficult, if we have grown up with a keen sense of our musical limitations, to cultivate the glad unconsciousness of the born singer, but it is not impossible. The one rule to follow is, not to be afraid to use what voice has been given us. Choir-masters lay great stress on the cultivation of the "musical conscience," that recognition that it is the duty of each one to contribute his best to a great harmonious whole. If we keep our music, as people used to keep their "best rooms", for company or for our leisure hours, we shall not get enough of it to sweeten our lives and the lives of those about us. Much as we often need rest from work, we need even more, as Lyman Abbott tells us, "*rest in work*," and in no way can we gain that more surely than by working to music. We make the mistake sometimes of thinking that if we are sad we must sing sad songs. People who are bearing real trouble can not afford to do that. Then is the time to sing the inspiring, courage-giving songs and hymns that strengthen instead of weakening us. If we find ourselves working nervously with a feeling that everything is going wrong and that we are "all thumbs," the recalling of some stately melody and the adapting of our movements to it will help to change our aimless flutterings to effective accomplishment. If life seems stale and unprofitable, try the effect of a song that is an outpouring of joy and thankfulness. But at all times let us sing the songs that are to be our children's heritage, the bond that links the past with the future. For what will it profit us if we achieve the greatest efficiency, the most exact knowledge, and the most untiring energy in our household tasks and fail to lead our children beyond the round of daily living, along the road that leads to life?

Those of us who have been inspired by Mrs. Rose Morgan's message on the mission of music in the world, will recall her belief that: "to supply the child grown old an inheritance of home memories is to provide him with a legacy whose worth increases with the years, whose meaning unfolds with life. Probably there is no form of early home influence more enduring than the home song, and its power is continuous in proportion to the place it occupied as an early home influence. The home song, therefore, should be elementally and fundamentally a thing of truth. It should not be the tinsel of fancy and sentimentality, but words and melody coined of the heart's pure gold."



FIG. 999. — A SONG SERVICE

THE INFLUENCE OF SONG

MRS. ROSE MORGAN, New York City.

"I will sing with the spirit and I will sing with the understanding also."—I. Corinthians, 14:15.

"Sing to your sons those melodies,
The songs your fathers loved."

—FELICIA HEMANS.

More than nineteen hundred years ago Paul wrote his letter to the Ephesians. He was then an old man. Out of the ripeness of his years and his clear vision of the Master he wrote words of encouragement and inspiration to those early Christians. Christian character was his theme,—“be filled with the Spirit”—“speaking to yourselves in psalms and hymns and spiritual songs, singing and making melody in your heart to the Lord.”—Ephesians, 5:18, 19.

“Psalms and hymns and spiritual songs”!—and men and the children of men through all the ages that have followed have been learning the blessedness of song and testifying to its influence for good. “The righteous sing and rejoice” is a proverb found in the old “Book of Wisdom,” and its command and privilege is the testimony of men’s hearts unto the present hour. The “spirit and the understanding” are ever working together to the end that song and singing may live in the hearts of men to humanize and harmonize experience.

Every life should begin in Eden—should have its blest traditions to return to its holy places and things on which an eternal consecration rests. The poorest of earth is he to whom memory makes nothing sacred. The riches of life are securely held in the chains which memory forges from life’s elemental principles—love being chiefest. Out of love the world’s greatest songs are made and ’tis love that sings them. The fatherhood of God and the brotherhood of man are told in a thousand ways by as many songs and singers. But, however covered, the constant theme is love—the language of the universal heart, singing the world’s kinship in an expression of common joy and pain, com-

mon fear and faith, common defeat and victory. "Glory to God in the highest, on earth peace, good will toward men!" sang the angels to the Bethlehem shepherds and today's world hears. "We praise thee O God, we acknowledge thee to be the Lord!" sang Ambrose of Milan on Easter Sunday, four centuries later, and the song is lifted and carried forth to die no more. "A mighty fortress is our God", sang Luther, after twelve more centuries, and men are safe-guarded and inspired by quickened faith. "Nearer, My God, to Thee", and the whole world is in prayer.

Carlyle wrote, "The meaning of song goes deep"; and as though pondering the thought, Longfellow mused:

"And, loving still those quaint old themes
Even in the city's throng
I feel the freshness of the streams
That, crossed by shades and sunny gleams,
Water the green land of dreams —
The holy land of song."

We have said that every life should begin in Eden. Memory, reaching back to that Eden, gathers with its mastering chains the eternal verities of childhood experiences,—mother, father, home, and links them with Hope's heaven. The voice of memory speaks and the *old song* is heard,—simple, quaint, sweet, true, immortal in its truth.

"Songs that breathe of scents and flowers,
Songs that like deep rivers flow,
Songs that bring back scenes and hours
That we loved — ah, long ago!"

Whittier, that loved poet of the home, hearing this sweetest of all memory's voices, sang with it:

"I hear the blackbird in the corn,
The locust in the haying;
And, like the fabled hunter's horn,
Old tunes my heart is playing."

"The winds so sweet with birch and fern
A sweeter memory flow;
And there in spring the veeies sing
The songs of long ago."

True song is the child of the Spirit. Its life persists in its influence. It is at once the cry and the answer of the human heart, and its intrinsic worth to that heart is tried, proved and triumphantly recorded in the Book of Life by Time's own hand.

“Time wrecks the proudest piles we raise;
The towers, the domes, the temples fall,
The fortress trembles and decays;
One breath of song outlasts them all.”

— OLIVER WENDELL HOLMES.

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COÖPERATIVE CONFERENCE
UTICA, N.Y. JULY 22-23, 1914.

DELEGATES TO THE FIRST ANNUAL CONFERENCE OF COOPERATIVE ASSOCIATIONS, HELD AT UTICA, JULY 22-23, 1914.

STATE OF NEW YORK
DEPARTMENT OF AGRICULTURE

CALVIN J. HUSON, Commissioner

Bulletin 63

Proceedings of the
First Annual Conference
of Cooperative Associations

HELD AT

Utica, N. Y.

July 22-23, 1914

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FIRST SESSION

WEDNESDAY MORNING, JULY 22

Meeting called to order at 11.15 A. M.; Mr. Marc W. Cole, presiding.

CHAIRMAN: It gives me great pleasure to open the First Annual Conference of Cooperative Associations. I wish to call your attention to one thing: The success of this conference will depend, not on the Bureau of Cooperation or the chairman of this organization, but on each one of you individually.

In a few words, I wish to outline the purposes of this conference that it may be made profitable and of help to us all, and that it may be kept on the track of practical business. Our session this morning and that of this afternoon are primarily to give us a general view of the cooperative movement and the kind of men who are engaged in it, that each of us may clearly see and find his especial work.

Our dinner this evening is to promote our acquaintance with each other, and tomorrow we expect that each delegate will tell us just what his own company has done, is doing and hopes to do. After this experience meeting, we are to have a series of round-table talks, at which the various topics in which we are all interested may be thoroughly discussed. The success of this conference, like the success of cooperation, depends on the amount of knowledge and effort each one of us puts into it. If we do not give freely and fully of our business facts and figures, no one will be able to realize the fullest benefit from this conference, and we should realize that essentially we are all in business together, and therefore our first duty is to get acquainted.

It would be a great mistake if any delegate should leave this meeting without knowing every other delegate, his accomplishments, his difficulties and his hopes. I wish to urge upon you all that you are here for business, and profitable business. Too many times in the past has the road to cooperative failure been paved with good intentions, with a lack of persistent effort, and with a lack of business foresight. There is work — hard work and slow work — to be done, and you men are to do it, each in his

own company and in his own locality, but as one individual has but a small chance alone, so one company is handicapped by its isolation from the other companies. In other words, there may be a difficult business proposition which is causing your company trouble; if you will state it here, there are, undoubtedly, many men who have successfully met and overcome this identical proposition. Again, you may have been able to effect some good business deal; give the benefit of your experience to us who have not had this favorable chance. Tell us where and when, and how to buy and when, and where and how you sell, and, if each one of us acts on this theory of cooperation, this conference, I know, will become a permanent factor throughout our whole business year.

During this entire conference, frankness should be our aim. Do not hesitate to offer suggestions, and above all do not hesitate to accept both suggestions and criticism. Do not hesitate to criticise the Bureau of Cooperation, and I assure you that we will welcome this, and we will welcome your suggestions for our future service; but above all try to make your suggestions and your criticisms helpful.

The cooperative workers in this bureau are here to learn how they can best serve you and I know they will all welcome your suggestions for the betterment of their service; but when you criticise or suggest to the other men at this conference actually engaged in cooperative work, please remember that, like charity, cooperation begins at home, and that first, everyone of us should expect to follow the lead of others before one can ask or expect others will follow him, his plan or his suggestions. At least we should all be in a state of open-mindedness and feel the necessity of submitting suggestions or plans to a fair argument, and must have a willingness to accept the result of this argument even if it is against such plans or suggestions.

The old-fashioned idea of arousing interest through the question box has proven such a great success with the farmers' institute work, that we have provided a question box; and you can in no better way show your interest, place before us your difficulties, and perhaps lead to very profitable discussion, than by writing out these questions that are bothering you and depositing them in the box. We will devote half an hour preceding each regular ses-



MARC W. COLE, SUPERINTENDENT OF COOPERATION, STATE DEPARTMENT OF AGRICULTURE.

sion to answering these questions. I do not flatter myself that I can answer them all, nor do I think there is any gentleman here who thinks he could answer them all; but it is only by bringing these questions to our attention that we will be able, in the future, to outline more definitely and profitably our work for future conferences.

I want to call your attention at this time, and throw the matter open for debate, as to the advisability of making this an annual conference, having it one of the permanent agricultural and urban conventions of the year. In that connection we want a full and free debate as to the most convenient place, where we will be the most at home, where the expenses of traveling will be fairly uniform to all the people who are interested in the work, and also as to the time of year. We appreciate in the department the many questions that each one of you have presented at different times about the season of the year for this conference, and you of course realize that it is hard work to have a conference at any time in the year which exactly coincides with every one's convenience. It seems to us, however, that this conference, called when it was, is a little bit out of season for the average farmer. And still we were in this position: unless we could go on record as to what had been done and what we hoped to do, we could not present so good a case before the legislature of the state as to the necessity and the advisability of continuing its work along cooperative lines. In other words, this meeting was to crystallize, and hopes to crystallize, and show to the legislature and to the citizens of the state exactly what is being done and what can be done. That was the reason why, as I say, we chose this month, in order that these committees which we may find necessary to appoint could make a full report and show, from actual accomplishment, the necessity of continuing our efforts.

The next question that I hope will receive your serious attention is amendments to the present cooperative law. That may be a technical question to many of you, but I know there are men engaged in the cooperative work who have certain amendments to the present cooperative corporations law which they think should go into force, and I want to call that to your attention;

either bring it in the form of a question, or present it when the meeting is thrown open to general debate. At any rate, I hope this matter will not be overlooked.

Another question which I know you will take up, is the federation of these associations into some form of a large cooperative organization. That may seem like the blue sky to a great many of you, but after the natural way in which I noticed, down on the mezzanine floor, the various groups of farmers and consumers getting together automatically, without any steering whatever, and dropping into little organizations, I think that shows the need, perhaps, of some kind of organization. It should be some sort of federation, I feel quite sure, from the signs I see at this conference.

Another question is the accounting system to be used in cooperative associations — whether these companies should adopt a uniform accounting system; because as we see it and find it around the state, whenever there has been a so-called cooperative failure it has been due in almost every instance to a lack of confidence in business management. A uniform accounting system, I am sure, would inspire in the membership of these associations an implicit confidence in the integrity of the men who are actually engaged in the business management, and it would also show to people on the outside that this was a square deal put into everyday operation.

The next question that I hope to see brought up is the question of whether it is advisable for these cooperative companies to advertise. I do not mean through the educational fund, but we would like to decide as to whether it is good business for a farmers' cooperative company, for instance, to advertise the matter of binder twine and fertilizer.

These are questions quite local here in Utica and Oneida county, and I should like to have you give them your attention.

There is no one in the state connected with the cooperative movement from whom we would be more glad to hear than our old original cooperator, Mr. John J. Dillon, of the *Rural New Yorker*. He is taking a well-earned vacation, but when this conference was called he went over the program and contributed

his very ripe experience and his wonderful personality to its development. I know that it will be Hamlet with Hamlet left out without Mr. Dillon here, but I felt, as did he, that he should not give up his vacation to attend this conference. He has written a letter, however, and I can imagine no better tribute to the co-operative movement or to Mr. Dillon himself personally, than to read you his letter.

ELIZABETHTOWN, N. Y., *July 20, 1914.*

I am sorry not to be able to attend the First Conference of Agricultural Cooperative Associations in the state of New York; but there is much work to be done during the coming year, and while restraining the desire to take part in this first general skirmish, I hope to accumulate new energy for the campaign to follow.

This conference marks an advance step in the development of cooperative organization in the state. Heretofore our discussions have been by and with and for individuals. We were required to show the need of local organizations, and something of the benefits that should result to the individual through wise and intelligent management of local cooperative associations, and unqualified loyalty to them on the part of the individual farmer. Now we pass by the individual for the time being and consider only the association of which he forms a part. This will be a conference of associations' representatives, and not a conference of individual farmers. Those who have been successful will, of course, give other associations the benefit of their experience; but I hope failures and difficulties will receive as much attention as conspicuous successes to the end that some may learn to correct their faults and others learn to avoid errors in organization and management.

I do not know that we are entirely ready for it yet; but ultimately the local associations must have a central association to furnish information and execute the orders and transact the wholesale business of both selling and buying for the local associations. Just as the individuals need a local association to assemble and market products, and to buy and distribute supplies, so the local associations will need an agency to keep them advised as to sources and cost of supplies; and the demand and prices of produce in the markets of the world. With this information in the possession of the central agency, the purchase of supplies in large wholesale lots and the sale of produce in still larger shipments will naturally develop and wonderfully increase the efficiency of the local organization. While we are not yet ready for the full development of this central agency, we have probably progressed far enough for a beginning and the ultimate functions and usefulness of the central agency would then progress in harmony with the development of the local associations.

While the systematic management of this system of buying and selling in the distant markets is important and necessary to an economic administration of agricultural affairs, the development of local markets is equally important and I hope will not be neglected. The individual farmer is even less qualified to develop local markets than he is to manage his shipments to foreign markets. This work must be assumed by the local associations

if we ever hope to profit by our opportunities. In this work I would insist on two suggestions. First: See that produce offered for local consumption is graded and standardized equal to shipments to the best foreign trade. Never allow anything to go to a customer that is inferior in quality, indifferently graded, or poorly packed. Second: Do not charge local direct customers fancy retail city prices. Make it an object for consumers to deal direct with your association. It always pays to give the other fellow a bargain.

I wish again to express my regret at not being able to be with you on this occasion, and to assure you and our co-workers in this cause that my absence at this time is due to no flagging interest in cooperation, but to the hope that a forebearance now will afford me the means of a greater future service.

With great expectations and best wishes for the success of the conference, I am,

Sincerely yours,
JOHN J. DILLON.

In conclusion I wish to say that first I want every one to know every one else at this conference. I hope, with that little word of advice, it will not be necessary to say anything more officially to you during this conference. The success of it will depend upon the acquaintances and the interest you develop here, and every man that wears a badge ought to make it his serious and conscientious duty to know every other man at this conference who wears a badge.

Before going any further, I think perhaps it would be perfectly proper to ask for some sort of a resolution creating or empowering the chairman to appoint a committee on resolutions, that we may go on record as to certain things—thanking the local organizations, and expressing our gratitude to Mr. Dillon and such others who may be interested in the movement, and I should be glad to entertain a motion to that effect.

(Moved and seconded that the chairman appoint a resolutions committee, to whom all resolutions shall be submitted without further debate. Carried.)

CHAIRMAN: I take the liberty of appointing Mr. C. C. Mitchell, of Millbrook; Mr. Fred W. Sessions, of Utica, and Mr. J. C. Bellingham, of Schenectady. I hope you will feel perfectly free to draw up these resolutions and submit them to this meeting. I shall ask Mr. Bellingham to be the chairman of this committee and draw up the resolutions.

DISCUSSION

MR. AYERS: You alluded to the fact that we were to discuss amendments to the law. As you know, from our correspondence, the matter of the 5 per cent. educational fund in Chapter 454, Section 34, is a question to which I take exception. I have never yet been able to find anyone who could give me a satisfactory explanation why it was in there.

MR. COLE: I think Mr. Ayers has voiced, perhaps, what has been in the minds of many who have studied the cooperative law. While I speak without a great deal of authority in the matter, I might say to Mr. Ayers that the present cooperative law of this state was drafted and written, primarily, from a consumer's point of view. I have the word of several gentlemen who were interested in this law at the time it was being drafted, and I think it was drafted entirely from the consumer's point of view, based on the experiences abroad. While the educational fund looks to the average farmer rather arbitrary, I am free to admit that a great many farmers I meet are not ready for it and believe that the 5 per cent. net profit could be better spent in the form of dividends; and as a farmer, I can say personally that 5 per cent. dividend would have more educational value to me than any tract I have ever received.

I should be glad to hear from Mr. Bellingham, who can tell you what they have done with their Schenectady fund. He may have a defense of that 5 per cent. that I do not understand.

MR. BELLINGHAM: I am struck with that remark of yours regarding the 5 per cent. being better used for dividends, and that is just exactly what the Consumers' Society uses it for. It is a dividend proposition, from the consumer's standpoint, and I believe also from the agricultural standpoint. At the same time I must say that I am not aware that any of the old country societies have made it compulsory. It is the only propaganda fund we have in the societies; it is the only propaganda fund possible in the educational societies. It is used principally for spreading the light and bringing in more members, and of course that itself is a desirable aim. We look upon it as being well-spent money, because little educational meetings we hold down there in Schenectady are financed through this particular fund. There are very

few of them held, but we are able to scoop in other members. We bring them in to get something out of it; we want them to see that to do so we must expend something to make it a success. We certainly stand for an educational fund. To the agricultural end it may be a little hard. I believe myself that 5 per cent. is a little bit too high and a little less might do, and it would throw more energy and work on these societies to make the most of this fund if it were a little less. I believe our society stands in favor of an educational fund first, last and all the time.

MR. COLE: That puts a different angle on it than perhaps the average farmer approaches it. In other words, Mr. Bellingham gives me the impression that it is used as a business proposition — it draws in more members. It is really advertising.

I should like to hear from anyone else who would like to talk on this especial subject. I realize that when you say "shall" in the law you do not allow very much leeway, and I am inclined to think that if we could put this proposition as a permissive one it would be better. I am not much of a believer in coercion. I believe that we can dispense with many of the regulations without dispensing with the principles. I should be pleased to hear from Mr. Pincus or Mr. Mitchell or any gentleman here.

MR. PINCUS: I believe in the educational fund, but I think this ought to be left to the discretion of the executive committee. I think that any executive committee of the local society ought to know whether it is necessary to spend 5 per cent. or 10 per cent. or 15 per cent. I do not see the necessity of having it specified in the law how much should be spent. The executive committee should have power to spend money for educational purposes, but I think we ought not to mention the percentage nor the amount. That has been our experience. We are spending a lot of money for educational work, but the executive committee decides how much will be spent. Of course we are not incorporated. That is one of the objections I have raised to the cooperative law, and I hope that some efforts will be made during the coming legislature to amend it.

MR. MITCHELL: I should think if the law were amended to read "may" instead of "shall" that would cover the difficulty.

MR. COLE: I should like to hear from Mr. Ritchey.

MR. RITCHEY: I believe an educational fund is absolutely necessary to the best interests of cooperation. However, it might be possible for a person to use more than 5 per cent. to good advantage; and again, a cooperative organization might be in a position where it could get along better without quite so much. It seems to me this ought to be left to the discretion of the organizations, to a certain extent, as to just what portion of the proceeds they should use for the educational purposes.

MR. MUESER: I should like to ask just exactly what is being done in the matter of education with that 5 per cent.—just what kind of work they do. It seems to me that the best way to spread the gospel of cooperation is to cooperate and make it a success. I cannot imagine anything that can be done in the way of talk or meetings that will do so much as to cooperate successfully.

MR. BELLINGHAM: First of all, we sent a number of pamphlets of the reproduction of an article that appeared in the *Review of Reviews*. We also sent to England for a set of lantern slides. Then we started a woman's guild, in which we discuss household affairs as relating to purchasing of supplies and best methods of cooking, etc., and we hope to develop that largely. We have social times in the winter and picnics in the summer, at cost, and we have get-together meetings. During the winter we have people speak on various topics. The woman's guild is well worth the expenditure of time and money.

MR. COLE: I think perhaps that tells you what can be done among the consumers with this advertising fund. I also know that several of the cooperative companies of farmers in Minnesota who operate grain elevators have an educational fund, although it is not fixed by statute, and they have an annual field day and picnic for their members and anyone else who wants to come. The expense of these social gatherings is usually paid by the generous-hearted individuals; but this makes it an entirely impersonal affair, and one farmer from Minnesota told me that it added quite a good deal to the success of their picnics.

I do not think any of us would begrudge the 5 per cent., but most of the farmers in this state do not like the idea of somebody's telling us that it has got to be done. And I know of companies earning 6 per cent. and 10 per cent. towards the reserve

fund, that object to paying an additional 5 per cent. to an educational fund.

I should like to hear from anyone else who would like information on this question of the educational fund.

QUESTION: Does this law apply to associations organized under the old law?

MR. COLE: It does not.

VOICE: This educational fund does not strike me as amounting to very much every year. A number of counties have a county agent, and the county and the state pay him to tell the farmers the things they want to know. The trouble is, most of them do not take his advice.

MR. COLE: Then I take it you would like to have it permissive?

VOICE: Yes.

QUESTION: Could not that be obviated if words "information fund" were used instead of "educational fund"?

MR. COLE: I think that is a fine suggestion.

MR. HEPWORTH: But would that not be compulsory just the same? Now, as a member of a successful organization on the Hudson river, I do not believe our people would stand for that 5 per cent., and it seems unnecessary. I believe each organization should do as it pleases. They have to do a certain amount of educational work anyway, and why should the state step in and say they must do it? The American people, as a general rule, are not built that way. I think it had better be left to the discretion of each cooperative society; let them do as they see fit.

MR. COLE: I hope someone will draw up a resolution.

MR. ROBERTS: I think that this clause in the cooperative law is a good one and it should remain there. Mr. Ritchey and Mr. Bellingham have voiced the sentiments of the consuming societies. Now the state cannot really go in and say we must, but it is the state that wants to encourage cooperation, and education is the first thing. I do not think that this should go in as an argument. For the same reason that the state tells us that our children have to go to school, they have a right to tell us we must educate. Cooperation depends on education, and let me tell you that for the next ten years the success of cooperation will depend only on the

amount of educational work that the societies will do. If they will agitate, they will succeed; if not, they will fail. Therefore I think whether it be made compulsory or not, it is only a matter of local questions; but there should be an education fund, and I do not believe anyone can raise any objections to it. The state, with a little foresight, put in the clause that 5 per cent. is the amount that should be allowed, so as to avoid probable friction later on. I think this clause should remain so. Of course each society should spend it the way they see fit; one may spend it for advertising and one for social affairs. But I am of the opinion that this clause should remain the way it is, speaking from the consumer's point of view.

MR. COLE: How would you feel about having it apply to the consumers' organizations and not to the producers' organizations? Or would you make it permissive with them?

MR. ROBERTS: I should make it permissive with them.

MR. WEBER: It seems that past laws have been inactive; they have more often said "Thou shalt not" instead of "Thou shalt". I think there is recently a great trend to make laws positive, saying, "Thou shalt do so and so". When we come to the idea of resenting coercion, all laws are coercion when you come down to that. The only principle involved is whether coercion is based on a right principle or not. I do not care how much I am coerced if I am ignorant. If you are going to wait until the people who are coerced agree with the coercion, you will never have any law — you will never have any society or civilization. It is simply a question of what is good and what is not good, and the majority of a community will have to decide that.

Concerning this idea of resenting any interference, I have no sympathy with that. I think men should be interfered with more in one sense, and let alone in another sense. So far as education is concerned, I want to say this: that you will never have co-operation until the people who cooperate have sense and intelligence enough to cooperate, and you must educate those people. I am in favor of a law that will reach people and forcibly educate them, just as we do with our children; so people who learn the laws of exchange will learn that our present system is a most

tremendously wasteful one. The sooner this happens the better it will be for society. It is not a good thing for people to get a living by producing nothing; it is a good thing to produce what they consume. I believe in education by all means.

MR. COLE: I can see that this is going to be a profitable discussion for us all, and I hope this is just the spirit with which we will take up every question, and we do not want to consider this question closed by any means. I should like to have the committee on resolutions flooded with resolutions, and when they come up for passage, bring up this question again. But I think we ought to give a little time this morning to the advisability of the time of the annual conference — as to whether it is advisable to continue these conferences, and also as to the time of year. I should like to hear some expression on that.

MR. CLINCH: I should suggest that we have an annual conference and that it be held in the city of Utica — that is easy to reach. Also the time should be the second or third week in August; that would fit the farmers the best, because the harvesting would be done and it would be before the fairs are on.

VOICE: I believe it would be a profitable thing to get together once a year and compare notes. A convenient time for all concerned would be early in the winter, perhaps in December.

VOICE: As a fruit-grower (which is my business entirely) I am very busy up to about the first week in August, and then I like to have a little vacation, and I generally take it. Now I could not go on that vacation and attend an annual conference, which I should like to do. I think some time in the winter would be more convenient all around. Soon after the middle of August all farmers are very busy. The winter time is better, I think.

MR. SCOTT: I believe winter is the best time.

MR. PINCUS: I have been attending conferences at Farmers' Week at Cornell, and I have noted that in February they always have a good attendance. It seems to me February would be a good month, and if you could have it just the week before or the week following the Cornell meeting, the same people could take in both, making it very convenient.

VOICE: I should suggest that it would be better earlier in winter than February. If we have this conference we will be imbued with enthusiasm as to prices, etc. February is pretty late in the year to take up this matter. Early in December would be more favorable than February.

MR. COLE: How about the consumers? Does it make any difference to them?

MR. WILSON: I do not think it would make any particular difference so far as the consumers are concerned. One thing I would say: I should like to see such conventions held, if for no other reason than to get together and exchange our different viewpoints. The thing that interests us, as consumers, is to get next to the farmer, and the way to get in touch with him is by the formation of societies. I think any city in the Mohawk Valley would be convenient, even Schenectady; we would be glad to welcome the delegates to a convention in Schenectady. If present indications count for anything, I think we will be able to show them a society worth looking at. It will not be many years before we will be out to trade directly with the farmer. One thing about the cooperative movement is that the best is none too good.

VOICE: I am of the opinion that early in December would be as good a time to have it as any time in the year; we would be able to talk over the matter of contracts for fertilizers and seeds and fodder corn — it would not be too late even to buy dairy feed. I should suggest that one year, at least, it be held in the city of Ithaca; it would have an added value if held there.

VOICE: I think, as a matter of education, that while it would be a good thing to hold this every year, it would be a good proposition to hold it at a different point in the state each year, and vote at each meeting where it should be held the following year.

MR. GEROW: I represent the dairymen, and a dairyman milks a cow 365 days a year and does not get a vacation. My experience with the farmer is, if you go to him you can get him. The suggestion previously made is along the lines that I have followed in the grange. I said they should go to the four corners of the county and that was adopted, and our attendance has been good and our success encouraging. I second the previous

speaker's recommendation of not having a permanent place. So far as Ithaca is concerned, they have a meeting there every year and it is nicely attended, and an opportunity is afforded the farmers to attend. If you divide these meetings as to dates and have one in the fore part of the winter, it would be more convenient and better attended, in my opinion, than if you hold them too close together.

MR. COLE: I hope these suggestions will be in the form of some resolutions, to be acted on at tomorrow morning's session. All the resolutions will be referred to the committee.

I should like to ask now if we can spend a few moments on the question of the accounting systems of these various cooperatives, and the advisability or necessity, as the case may be, of adopting some uniform system. I should like to hear from some of the gentlemen who feel the need of that, first, and then perhaps some of the consumers' organizations that have not adopted the system might see the advisability of having a simple accounting system.

MR. OSBORN: That is a wise suggestion — to have some definite form for keeping accounts. We have found that bookkeepers, although absolutely honest, are not always expert, and the accounts are very liable to become confused. If the state or some other authority would outline a very plain, simple, definite system of keeping those accounts, it would be a good thing for these associations.

VOICE: I think the need of some definite system has shown itself wherever cooperation has been tried. That is one of the difficulties we are struggling with in Dutchess county. When we talk about cooperation a farmer will say, "If you are going into this thing, how are you going to do it, and how is it to be carried on so there is no misunderstanding and no difficulties that will need explanations later on?" We should like to hear from organizations that have overcome these difficulties. We thought, in Dutchess county, we might form local groups and try to do business in that way, having our orders pass through a central association, and using a system as simple as possible, but yet definite enough to avoid all these difficulties where loose business methods

are used. We have no plan at all, but would like to hear from some men who have had experience in that way.

MR. COLE: I think Mr. Bellingham can perhaps tell us about the system employed by the Schenectady Cooperative Association. I am quite in sympathy with the idea of having a uniform system. I will say this, though, that it should come as a demand on the part of these organizations, because it has been my experience that those systems might be, in a measure, open to a question if they were handed down from a bureau or similar head. I think some simple system would be a good idea.

MR. BELLINGHAM: I am sorry I cannot give you the details; perhaps the president of my society can do it better than I can. One of the functions is to have a bureau established by the state to exercise a supervision over the societies or associations. This is the rock that all cooperative movements, so far, have absolutely split on. In Schenectady we have a system that quite fills the bill, but we stand for a state supervision of the financial conduct of each group or society. The necessity for this is apparent. We talk of larger federations and being drawn together by the bonds of sympathy, but sympathy does not have the desired effect. We may find in this larger group one society with a suitable system of accounting, but we may meet the proposition that both societies, or group of societies, are involved in a clash through the weakness of this particular link of honest fellows who have no business make-up about them. The weak link determines the whole chain. There is where the state, I think, can aid better than any functionary we can possibly look for in the cooperative movement. The books must tally up to a certain standard of financial ability. This would give the cooperative movement a boost.

MR. HEPWORTH: I should like to have it understood that I am not against the state's having charge of these things, and so far as uniform bookkeeping is concerned, I think it is a very good idea. Our association has been up against that very same condition. We have had honest men to take care of our business, but when we came to settle up, after having an expert go over our books, those of us that could look through a glass door could see there was something wrong. Still there was nothing crooked, you understand, at all.

Now I do not want to go on record, as a representative of the Hudson Valley, as against this bookkeeping, but I believe the state can go too far. You gentlemen who come here representing a retail grocers' association, or the cooperative societies in the cities, have an entirely different proposition from the farmers. Most of you are gentlemen from the old country who are imbued with the ideas of the old country, that you have practiced for years there, and that the American people today do not understand. Your proposition is different from that of the producers.

We want to cooperate with you; we want to get the most we can for our produce. You want to buy it as cheaply as you possibly can. The way we can get together is to eliminate the middlemen — that is our only salvation. The farmers must get paid for their labor or they are going to stop. In my community I can show you today hundreds of acres lying idle that ten years ago were producing crops; because the farmers today cannot produce stuff on their farms to make a living, and they have just simply given up. This is one reason for the high cost of living. Hundreds of acres in my locality that once produced milk, are today producing nothing. I am in the fruit business, and I am getting in the same position. I have hundreds of quarts of fruit on my vines today that I shall never pick, simply because I cannot get them to the consumers. I go to the cities and hear big prices asked for produce — four times what I ask for it. We are ready to be educated; I understand the conditions and I know. But how are you going to educate us?

MR. MITCHELL (E. W.): As Mr. Mueser said, we would like to have a little education right now as to what other societies have been doing.

MR. WILSON: I do not think I can tell very much about it. We have the two ledgers, of course, the stock ledger and the sales ledger. We simply post in the day book the cash business done. It is all check business outside of that, so that the check book is always posted against the ledger to show where we are at. I do not know whether or not our system is correct; we realize, however, the necessity of a uniform system of bookkeeping. We know that it is a necessity, and our friend from Hudson Falls does not deny the fact. The thing before us at the present time is the accounting system.

As Mr. Bellingham said, before the state federation comes we must have a district federation. I should not advise a system that no one but the man who happens to keep the books can understand. That has been the trouble in the past; it has been one of the great causes of failure of cooperative effort, both among the farmers and among the consumers. In Britain they have a registrar, and I believe there are four districts. All societies must send in an accounting of everything they do, and if there is a company not accounted for the registrar will return that system until he has been shown how the money was spent. We have seen the results of strict supervision and are therefore in favor of the supervision of the accounting system.

QUESTION: Will the same accounting apply to your end of the business as it would to mine?

MR. WILSON: It makes no difference. The same system would apply to the General Electric Works in the city of Schenectady, doing a business of hundreds of millions a year. All the difference is that the General Electric Works will probably have fourteen duplicates. I do not know that I can see any difference between the farmers and consumers, so far as the bookkeeping system is concerned.

MR. COLE: I have consulted with two expert accountants on this question, for my own information, and I have at present two men at work on a system consisting of a sales book, a day book and a ledger. Now the question of trial balance or a report: My idea is just a curbstone opinion, that we may have to change in some minor particulars these systems, even the best one that we could possibly devise at present. I could imagine a system that would apply to a creamery, for instance, that would hardly apply to a consumers' organization; that is, I could imagine there would be more detailed report as to the quality of the milk and the tests and the weights, etc., to satisfy a patron, than, for instance, a sales slip for a cake of soap or anything similar. That was the proposition that was put to me at once by one accountant; he said that part of the suspicion on the part of the producer is going to be on the grading, whether fruit, vegetables, or other produce. So you would need to have an accounting system to show to the other members.

I should like to hear from any other gentlemen who want to talk about this subject. Only by talking it over, can we possibly evolve a system that you can use. I should like to hear what some of the gentlemen think about a day book and ledger.

VOICE: Such a system is all right, but I fail to see how it would apply in Dutchess county. There may be a dozen or more local groups formed. Our plan is to have one man in the group do the business for all. How can we have a system of accounting that will cover all the groups and the main office? We will not do enough business for a number of years to pay to hire anyone to take hold of the whole business in the main office.

MR. COLE: There would be the question of having your day book and ledger opened; that would be the obvious way, I think, to answer that. It is not clear to me how the main office, located in Poughkeepsie, would know how many tons of fertilizer John Doe bought.

QUESTION: How about this draft business?

MR. COLE: That is a business proposition. I should answer right off that the treasurer of the company that ordered the goods should meet the draft.

VOICE: The goods, of course, have been given to that man and the sight draft made out to him.

MR. AYERS: I think that a large share of this grows out of the fact that the average producer is not very well acquainted with accounts. As you know, Mr. Cole, we are a corporation and have to report to the Comptroller and so on, and our accounts must be accurate. I should be in favor of the state having supervision over the accounts of the cooperative associations, the same as the banking department over banking institutions. I believe that could be done. This matter of sight drafts and so on can be handled very easily as soon as one gets accustomed to the methods. For instance, the Thompson Company of Baltimore (a fertilizer concern) has different branches throughout the country, the entire business being centralized in Baltimore. I have a relative who sells flour in Rutland and his main office is in Buffalo. You take the large business organizations all over the country, and this question of having subdivisions is a minor point that can be easily handled by blanks. I think that your experts could do that. I should advise that they consult with practical men.

MR. MCGINNIES: I represent perhaps one of the largest shipping associations in the state, the Chautauqua & Erie Grape Company. We have transacted business as high as two million and a half in one year. Our ordinary business now is about half a million dollars. We operate through the towns in the Chautauqua grape belt, taking in several towns. We have local associations in the several towns and we have a central association. Our bookkeeping has been the least of our troubles. Of course we have a large association and we employ an office force and keep a double entry system of books, making a detailed report at the end of each season's shipping. We have never had a question raised, so far as my knowledge goes, by any farmer who ships through our company. This is a company of farmers and a co-operative shipping association. We have never had any questions raised as to our method of bookkeeping or reports.

Personally I am not in favor of the state taking over our bookkeeping department or saying how we must keep our books. I think we have the same right that any other business association has to keep its books, so long as we keep them in a proper, business-like manner. I have had some experience with the state in making out forms — I am the clerk of our board of supervisors, and I know something about the uniform system of accounting that the Comptroller is trying to obtain; I know that the system he has brought out is very complicated for the ordinary man. If the state says that we must have a uniform system of accounting, my suggestion would be that they make that system as simple as possible, because from the general conversation here it would seem that the most of our associations are not employing trained bookkeepers — that it is the ordinary man, to whom the common double entry system of bookkeeping is all Greek. The simple system of bookkeeping might be of advantage. So far as our company is concerned, it would not.

One of the gentlemen spoke about the different branches. We have several branches, but of course ours is a shipping association. All the growers get the same price for their shipments on the same day, and each grower gets a statement showing the number of baskets or the number of tons shipped on that day.

MR. RICHARDS: It seems to me quite necessary that we have

some uniform system of bookkeeping, and it also seems necessary that we should have someone to supervise this bookkeeping. In getting out our books, I suggested we turn them over to a certain department for audit. Some of them said, "Well, if they won't take our figures they won't take theirs; if the members of their organization are not satisfied with the figures, let them go over our books." It sounds good; but we know that the general run of people are not going over the books. If we do not have competent people to look after the books, things are liable to go wrong. I know they often have. There may be some organizations that are fortunate enough to have a membership that is educated up to the necessity of looking after their own affairs; but so far as I can see it, it is necessary to the welfare of cooperative organizations to have a system of bookkeeping, and to have a state auditor go over the books. Of course, the system should be simplified as much as possible. I do believe there is no question but that we ought to have a system of bookkeeping and a system of audit.

I know a gentleman, who was a teacher supposed to have a good education; he was manager of a grange organization. Members told me that when he got through with the books they could get nothing out of them. It seems to me that a system of auditing would obviate such a difficulty.

MR. BUSH: It might be advisable for the state to have a prescribed method of bookkeeping to take care of exchanges or cooperative associations that do not employ bookkeepers, but I do not think there is any necessity for the state's undertaking to keep the books for all the cooperative associations. The Eastern Exchange has bookkeepers to keep the books — first-class bookkeepers — and we have no objection whatever to the state's sending an auditor to the office at any time to investigate our books. But with an organization that is really an organization, and properly handled, there is no trouble about keeping the books. It would possibly be a good thing to have the state auditor come around and assure the public that everything is absolutely all right. I can see where, in some of the cooperative organizations that have been started in New York State, it may be necessary for the state to furnish not only a system, but a man to keep the books for them, because they probably have not very much money to hire a book-

keeper. But as to making it a compulsory proposition, I do not think it is feasible.

MR. COLE: I think the idea was to have some simple system, the desirability of adopting which could be shown to these men, and then, as I understand it, have this system as uniform as possible. I do not think there is any association that would not welcome any system adapted to their needs. As I understand the consumers' organizations, they want some system of audit where the individual member would have an added confidence in that system.

Any system that the bureau might undertake, at present at least, would be quite a simple one. I understood Mr. Wilson and Mr. Ritchey, and the consumers' organizations, to mean that they wanted this system presented to them in a simple form for their voluntary adoption, and then have the auditing system take place. It would, of course, facilitate the audit of those books if it were uniform.

We are glad to have your experience, and we know the coat was not made for your organization at all. But some of these organizations, as you say, and as you know, have not the training necessary to keep even an ordinary set of books, and we want to devise some system that we can advise them to adopt.

MR. BUSH: I think it a splendid idea to have the auditors inspect the books, and not let the organization know when they are coming.

MR. OSBORN: This thing has been broadened out. I think it would be a good idea to have a yearly conference and get together. If each one of these organizations had a different system of book-keeping, it would be very confusing. If someone (I do not care whether it is the state or this department) will get out a good, plain system, not to be compulsory for everyone to follow, but suggest they follow it for their benefit, you can tell a great deal more about it. I should almost like to have a committee pass on the politician who was sent up here to look over the books. I feel, as a member of the Oneida county, it is up to the Oneida county organization whether they sink or swim financially. I do want a system that, if successful, we can compare with the unsuccessful one, without having to get an expert to explain it.

If, when you have another conference, you all decide to send someone up to look over the accounts, all good and well.

VOICE: I am not an expert bookkeeper, but I have two sets of books to keep, and I try to have the accounts as accurate as possible. At the same time we have been unable to have very much expense for bookkeeping machinery. We have no cash registers — just an ordinary set of books. I use a day book but I do not set down each article on the same page. I have a blackboard on the wall. I make my day book answer the purpose of a day book and ledger, leaving quite a number of pages if the customer is a good one. It would cost quite a little to operate the store with all the modern appliances. I do not know whether, if the state should give us a system of accounting, it would include an expensive system.

MR. COLE: I know that this is going to be a prolonged and profitable discussion. I do not want to limit the time for it at all, and I think perhaps later on this afternoon we can go more in detail about this system.

As I understood it, the desire for this accounting system is simply to insure confidence of the local membership in the system — not to make an examination into the morals of the company, but to give advice. I shall leave that in your minds, and we will adjourn until 2 o'clock this afternoon, when His Honor, the Mayor, will give you an address. I am going to throw the meeting open to our question box and discussion.

Meeting adjourned.

SECOND SESSION

WEDNESDAY AFTERNOON, JULY 22.

Meeting called to order by Chairman Cole.

CHAIRMAN: I am informed that His Honor, the Mayor of the City of Utica, is called away on very important business. In his absence we will listen to an address of welcome by Corporation Counsel August Merrill, formerly Deputy Attorney-General for the state, who wishes to bid the delegates welcome on behalf of the Chamber of Commerce and the citizens of Utica.

MR. MERRILL: Mr. Chairman and Gentlemen: I rather take exception to the characterization of the few remarks I will make, as an address. I have not prepared anything, but where the heart is full it does not take a great deal of preparation.

I am accorded the privilege of meeting and saying a few words to you for the reason that the Mayor is detained on very important official business and cannot be here. You were called here, as I understand, for the purpose of taking up a most important subject for consideration—that of endeavoring to devise a plan, and of working it along practical lines, for eliminating the waste that results in marketing between the producer and the consumer. Not only Utica but our whole country, unquestionably, is greatly concerned in the subject. You men, by reason of your actual experience in the past, ought to be capable of solving this question if it can be solved. Utica is interested also because of its large rural surroundings, and what means prosperity to Utica always means prosperity to the country around it. Utica, in fact, is dependent upon the prosperity of its rural surroundings.

We are pleased, gentlemen, that you have made Utica the place of your first conference. We hope, and I am supposed to urge you, to make it the permanent home of these conferences. I can urge upon you this consideration, which is entitled to some weight,—that there is no place in this state where the transportation rates are so nearly equal as I believe they are to Utica.

Gentlemen, I can not present you with the keys of the city, because I am informed that the last parties who borrowed them

forgot to return them. But I can do this: I can bid you, and I do,—as the representative of the city and in a sense speaking for the Chamber of Commerce—a most cordial welcome, and again I want to express the hope that you will make Utica the permanent home of these conferences. I thank you.

CHAIRMAN: No one knows better than myself, perhaps, the amount of enthusiasm and of the true spirit of cooperation it has been my great pleasure and advantage to have given to me on the part of the citizens of Oneida county. Not only has it been my pleasure to meet them in a business way, but it has also been my good fortune to meet them in a social way. While it is customary, I know, to say some very pleasant things to the locality where you happen to hang your hat, I will say that in no place I have been, have I met with the cordial, open-hearted welcome that I have in this city. This is not said in disparagement to any other city; but somewhere along the line, these men in Oneida county have learned that men at least should not be judged on suspicion alone. They have taken me for what I have had to give to them, and I will say frankly that they have given me manifold more than I have ever given them. That is the spirit I want to see in every place in this state, especially in every city, toward this work.

It is only too natural, on the part of the city dwellers, to look perhaps with suspicion on anything that savors of patronage, of political interference. It is also true that the farmers are equally suspicious of these same things. And I am glad to say that, so far as I have found through this state, that spirit is rapidly yielding to a proper spirit of judging men by their works and not by the representations they may make.

I do not want to take up any more of your time with a formal address, except to say this to you: that cooperation, as I see it, is just like charity—it begins at home, and that no man in this convention should rise up and say what someone else ought to do. I should like to eliminate the word “ought” from every co-operator’s vocabulary.

I should like to see, first, that spirit of cooperation which makes you want to do something for the other fellow before the

other fellow is asked to do something for you. In no better way can you prove to the "doubting Thomas" on the street what you mean by cooperation than by showing him first that you are the cooperator.

In our discussions this afternoon, and in our round-table talks tomorrow, I again want to emphasize that the success of this meeting will depend not on how much you can get out of this, but how much each one can put into it. If you gentlemen will approach the round-table discussions and the discussions this afternoon with the spirit that you showed at this morning's meeting, it will be a wonderful success and will be a profit and benefit to us all. But first we must have the spirit of giving everything we can, and trust to the spirit of cooperation in others to get our own individual reward, and it will be a large reward I can assure you.

You will see on the program that the round-table talks for tomorrow are divided into four heads. The reason I am taking time by the forelock in bringing these things to your attention is this: we were rather in the dark as to how to outline a successful program for this work. We adopted the old standby, the question box, as I told you this morning, and will take up those first. Then we adopted the old round-table talk that has been so successful in the Fruit Growers' Association. The four tables have been assigned, one on Organization, one on Purchase of Farm Supplies, one on Purchase of Domestic Supplies, and one on Marketing of Farm Products. On each of those tables in this room tomorrow, and perhaps in the next room, we will have a schedule allowing 45 minutes, under the Purchase of Farm Supplies, to the discussion of the purchase of fertilizers and feeds, etc.; then we will allow another 45 minutes to the purchase of farm implements, small tools, etc.; then another to the purchase of feeds, lime, etc., and then a final discussion of a general character. On the sale of farm produce we have decided to give 45 minutes to the discussion on the sale of fruit, 45 to milk, 45 to the sale of vegetables, and 45 to general farm products.

We who are familiar with this work do not fool ourselves by thinking that as the result of this we are immediately going

out to sell all our products, but everyone knows we have to creep before we can walk. I know that if you will make it your own business to circulate freely among those four tables (trying to arrive there when the subjects in which you are interested are up for discussion), you will find, as I have and every other person who meets the men actually engaged in this work, that they know a whole lot more about it than you thought they did.

I shall take up these questions in rather an informal way.

QUESTION BOX

One question submitted is, "Is it optional with us as to how we shall apportion dividend?"

In answer to that I should say that it is not optional. The law says there shall be a uniform dividend. The dividends are divided, twice the rate of the dividend going to stockholders and employees of the company, and one-half that rate going to the men who have done business with the company, in multiples of \$100 during the calendar year. That is the law on the subject. If they mean by "dividend" in this question whether there is the interest charges and reserve fund charges, I should add to that that the dividends are limited to 6 per cent. on the stock. Ten per cent. additional must be set aside to create a reserve fund until that reserve fund becomes 30 per cent. of the capital stock. Five per cent. also shall be set aside for an educational fund, which we debated this morning.

The next question says, "We have \$11.08 profit. What proportion should be divided in dividends and interest to stockholders, non-stockholders and so on?"

I think I have answered that by the preceding question. In that event the \$11 would be divided. Six per cent. interest on the capital stock would be taken out first; then 10 per cent. for a reserve fund, and 5 per cent. for the educational fund; the rest of it would be divided. Of the remainder, $66\frac{2}{3}$ per cent. would be paid to stockholders and members, or members of the company and employees, and $33\frac{1}{3}$ per cent. would be divided among the men who had done business with your company in twelve months to the extent of \$100.

QUESTION: Does that refer to all corporations?

CHAIRMAN: All corporations. It would not affect any previously incorporated company. I am inclined to think that the previously incorporated companies, in a short time, will see the advantage perhaps of adopting the form of organization of a truly cooperative company.

QUESTION: What date does that mean?

CHAIRMAN: The law was passed, I think, in May, 1913.

CHAIRMAN: This is a question that I am going to throw back at some one, "How can you keep up prices set and demanded by some companies?"

I frankly admit that I do not quite gather what was in the mind of the man who asked that question. If he means should you keep prices up, I should say by all means, yes. One of the most disastrous things, to my mind, that can possibly be undertaken by any organization is to start a price-cutting campaign. Of course I realize as well as you do that it is hard work to start out that way, and you may have to offer some bait to the average farmer perhaps to get him to do business on the start; but I sincerely hope that before the movement has been under way very long, every company will see the advantage of charging a fair profit on the business they do. The other way is too dangerous, as I see it. If you sell too close to the cushion some little unforeseen event, over which you have no control, is liable to put you on the wrong side of the ledger.

QUESTION: What is the fair profit?

CHAIRMAN: I should say to figure all your overhead charges and then add at least 10 or 15 per cent. profit on your business. I do not see how you can satisfy your stockholders unless you give them a profit on their dividend. If fertilizer is sold at cost price, plus perhaps a little labor charge in distributing, I do not think it is good business. Your opinion is as valuable and good as mine, but I can see trouble ahead if you do that very long; because if a car of fertilizer were washed off the track, unless you had a nest-egg you could not meet the loss. Beside that, if a man is caught by price cutting he will not make a very good fellow to stick to the organization through thick and thin. I should rather return a dividend to the members.

VOICE: It is possible that if we were to advance the cost price by a margin of 10 or 15 per cent., that price would represent a larger price than other individuals are offering the same thing for in the same community.

CHAIRMAN: I should like to be able to preach the sermon of, "cooperation even if it costs you something." I have all the sympathy in the world for the farmer who wants a 25-dollar fertilizer for 20 dollars; but I am inclined to believe that the fellow who pays 20 dollars for a 25-dollar fertilizer will buy for \$19.75 from outside of your company. The fellow to get is the fellow who will pay 26 dollars for a 26-dollar piece of goods, if he knows it is for his own company's salvation.

CHAIRMAN: The next question is, "Can a uniform system of accounting be enforced?"

That question was quite thoroughly gone over, and I am going to put it over for future consideration.

CHAIRMAN: "Can a loose-leaf system of bookkeeping be used by cooperative societies chartered by state?"

I am informed since coming to Utica, by an attorney upon whose judgment I have every reason to rely, that it is not possible to use that loose-leaf system in connection with an incorporated company — he may be wrong about it and he wants to be able to look it up — because an incorporated company has to have a book-keeping system that does not offer quite the element of chance that a loose-leaf system does. Now he may be wrong about that.

QUESTION: Does a cooperative company have to make an annual report to the state the same as others?

CHAIRMAN: Yes, to the secretary of state.

QUESTION: Who furnishes the blanks?

CHAIRMAN: The secretary of state has the blanks.

QUESTION: Is he supposed to send them to the managers?

CHAIRMAN: I am not sufficiently posted to answer that.

VOICE: They have always been sent out.

VOICE: I have received a blank from the comptroller's office to fill out, but not from the secretary of state. The comptroller's report comes regularly.

VOICE: I think, according to the law of the state, if they do not make the report to the comptroller they lose their charter. It would stand them in hand, if they do not get a blank, to send for it.

CHAIRMAN: The next is a question that should not be answered by a mere farmer, "What is the best use of printers' ink for the producer?"

I do not think many of us, as farmers, know how to use printers' ink profitably. Many of us may have used it but not profitably, and I should like to have some opinions on the question. Several men in the Oneida county company have asked me whether they should go out and advertise to the farmers of the company that they had good binder twine to sell at a fair price. What do you think, Mr. Grein? Do you think printer's ink pays?

MR. GREIN: I do. It would be profitable if the average farmer could get the commission man in the city where he sells his goods, to make an announcement to the housewife such as this, "Next week we will have a carload of cherries from this county or that county, and the price will be just about as low as we expect cherries to be this season. Get your cans ready and wash them. Your grocer will be able to get these cherries at our commission house." I think that when your societies are in working order, unless you can have your own stores in the selling market, you must get your commission merchant to advertise the fact that you are going to have goods at his place for sale, and they must be carried away from there before they become spoiled. To-day the only way that the farmer has of having his goods carted away from a commission merchant on the market is through a grocer, and the average housewife does not even come in contact with the grocer — she phones him. So she might say, "Mr. Johnson, how are strawberries today?" He might reply, "Well, yesterday morning there were a lot of them on the market, but they are getting rotten." Now that does not help. If it could be announced that "next week shipments are coming in, and be prepared to take care of some of this fruit coming in," that is the publicity the farmer must look forward to — to get the stuff into the hands of the people before it spoils.

CHAIRMAN: I should like to hear from Mr. Terry, who is the editor of a Waterville paper. I should like to know if he thinks it would get any business for the Oneida county company if they advertised in his paper.

MR. TERRY: Naturally, being in the newspaper business, I

believe in advertising. I can speak from my experience I have had in the cooperative business just in a local way. The companies there, for instance, are interested in binder twine; they are selling binder twine to the farmers, and we have had occasion to get out circulars for the companies and mail around to the different farmers, and I think that could probably be done through the newspaper just as well, if not even better than it could through the circulars. Our newspaper is principally for farmers; it does not conflict in any way with the city dailies, and we do not try to ape them in any way. Our circulation is all rural; we are looking after the rural interests, and want to boost them any way we can. The cooperative company out there has given us a great many points in newspaper work. I think perhaps Mr. Ridings, who is the secretary of our company, could give a little more information on the subject of advertising, from the company's standpoint, than a newspaper man could.

MR. RIDINGS: We have not tried any newspaper advertising yet, so I could not say in regard to that.

CHAIRMAN: I should like to hear from Mr. Corbin. Do you think you could attract business by farmers advertising?

MR. CORBIN: I can say, as the son of a man who has always used the newspapers, and as secretary of the local fair, that without the newspapers it would be impossible to do anything. If you can only get onto their habits, they will be your best possible friend; if you know the habits of a newspaper man and strike him just right, you can get the best result.

VOICE: This year in the cherry market it has worked out. One of the retailers we were delivering to made a feature of our cherries and the following day the sales of cherries doubled, and in that way we disposed of our crop.

CHAIRMAN: I should like to hear from some of the consumers' companies as to what they think of advertising.

MR. RITCHEY: It is a well-known fact that you have to get hold of the people somehow; but how we are going to do that is a question. Of course the newspapers would be the best method, providing you can get hold of them without too big an expense. The trouble is that it costs us more than we can get out of it, and when we make any kind of expenditure at all the first thing to

consider is how much we are going to get out of it; that is one trouble with us, so far as newspaper advertising is concerned. It is absolutely necessary, however, to get to the people through some means or another.

MR. BELLINGHAM: Here are two commodities — one sells for ten cents, another sells six for a quarter. The one that sells six for a quarter contains three ounces more than the one that sells for ten cents straight. Satisfaction is found in the six-for-a-quarter article equally with the ten-cent one, but the ten-cent article in the Saturday Evening Post had a big illustration of certain things being done, and the consumer is asked to pay for that two-thousand-dollar advertisement. You go into a store and want a barrel of flour that has been forced on your conscience by all these sheets, and you pay a dollar a barrel more for it simply because it bears this brand. Now there is advertising for you. Why don't you farmers do likewise? Satisfy your customers.

Down there in Schenectady every member is a customer. They tell the neighbors all about the store, and there is our advertising. Now this is what advertising and printers' ink means; it means boosting the cost of living. Don't spend too much money on printers' ink — it is lost.

CHAIRMAN: I don't want anybody to think that if they can come in here and get away with anything, they can get away with much.

MR. RITCHEY: When we spoke of printers' ink I do not think we spoke of it in that sense of the word. We must let the people know we are doing business, and that is what I meant in the way of advertising. On the other hand, in regard to the consumers who are or are not stockholders, I want to say that in the nearly two months' time we have been in the grocery business we have served about 105 customers. Out of that 105 families, 60 of them were non-stockholders. We have in our organization at the present time about 110 members. I cannot see where we are going to lose anything by it, on the ground that the profit that those consumers get is only credited to them in the payment of a share of stock, and when they pay for their share of stock they have the same rights and privileges that any other stockholder has.

VOICE: I think in some cases it would not pay to advertise farmers' produce, or some of the produce that comes into our home place. The first thing, in advertising, is to have goods that are worth advertising, and when an association is not actually in position to deliver the goods it is unnecessary to advertise; but I think when a farmers' association does have the goods to deliver it is worth while.

CHAIRMAN: I take it the question was directed with the idea of finding out whether the association had certain things to sell. That is, of course, a question of local good business judgment. If you had a special bargain, or an especially fine article to sell, I think it would be a legitimate function to advertise the same.

QUESTION: Do I understand you to say to sell outside of their association or in the association?

CHAIRMAN: Anywhere.

QUESTION: Or in other words, you want the society to go into competition with other business men in the community?

CHAIRMAN: I think perhaps that is the result of it. But if you could get the business from a few farmers, they would eventually come into your association.

QUESTION: But if you give them the benefit of the prices without their coming in, what is the use of their coming in?

VOICE: Now I think that is one reason why some of our associations fall down; they go to work and buy goods, and by buying them at wholesale and in large quantities they can get them cheaper than the retail people who buy only a small amount. Then the association cuts under the local prices. I think that is where they cut their own throats. I belong to an association, and against my judgment they have done that thing, and I don't think it is right; I think the prices should be kept up just as near the regular prices as possible. Those who have put their money and time and energy into the association to make it a success ought to have the benefit of it, but the outsiders should not. Our agent went around this spring and undertook to sell fertilizer, and cut the old line price. I did not approve of it. He cut two or three dollars on the old line prices, and of course we made two or three dollars; but that doesn't amount to a row of beans. Our association wants to sell our own produce — that is the object.

VOICE: We in the Long Island Grange charge a commission of 3 per cent. on carload orders and 5 per cent. on less than carload orders, to the members of the grange, and to members outside of the grange a commission of 10 per cent., on orders already placed. A part of those commissions revert to the grange treasurer. Our agent bought a pair of scales for the use of all members; anybody outside the grange pays for the use of the scales, and that money goes to the grange treasurer. Everything going into the grange treasury at present is for the building fund.

Whether you use a newspaper or circular letters, referring back to the discussion of this morning, I think it is very largely a local matter. I question if you will find two sets of books anywhere in the city of Utica comparing one with the other. Every organization has its own system to work out; every individual has his own way of wanting his own information. I believe it is advantageous always, wherever possible, to give your advertising matter to the press, if for no other reason than to get their good will. By giving your advertising you will often get a reader that is worth to you in return far more than the cost of a half-page advertisement. And cultivate the friendship of the press — it is a good thing. Give them facts as they come along, and don't be too modest in letting them know what you have and what you are doing. On the other hand, I don't like circular letters.

MR. BUSH: The speaker is absolutely right; so were you about keeping the price up. The advantage given or received by the members of a cooperative organization on the purchasing end of supplies should come back to them in dividends. The price should be kept up, and there should be a line drawn. You should not go outside of the membership and give outside people, who pay no money and do not support the movement, the advantages you do to those who do support it; if you do you should charge the full price, and give no return at all in the way of dividends.

CHAIRMAN: I quite agree with the maintenance of price, but, unfortunately, under the law we must give dividends on the basis of the amount of business done. Business men realize that the profits of any business depend on the volume of that business;

that is absolutely sound sense. If you do not have any business you will not have any profits, and if it is profitable to sell a 25-dollar fertilizer to your members at \$25 it is equally profitable to sell to the man outside. I think the cooperative company that says, "We don't want to sell to anybody else," occupies exactly the same position as some of our friends who do not want to sell to cooperative companies. If the business is profitable, the amount of dividends that they get will be no more than you would have to pay to get their business through any other channel that I know of.

QUESTION: On that basis, is there any inducement to a man to join the association other than that he will get six per cent. on his money?

CHAIRMAN: No. The fellow that sends his children to school probably does not always realize that it is a very good thing to send them. He may send them against his will. He may get as much out of it as the fellow who takes an interest in school affairs. If you go on that theory, that a fellow gets as much out of it as you do with 6 per cent., I believe we must start at the A, B, C of cooperation. I, personally, would rather see a small company that had the spirit of getting the business from anybody, than one that said, "We will do business with our members and nobody else." I do not think there would be any special private advantage to the members aside from dividends. The man who goes into cooperation with that narrow idea and no more, will not get much out of it.

MR. WILSON: We sell goods to anybody who will buy them; that is what we are there for. When the dividends are made a certain rate is established; that is paid to all members of the society. There is one thing we do besides, which is that half goes toward the payment of a share of stock. The thing that we want is more cooperators.

In Schenectady we have not been much in favor of printers' ink. The only thing we have done has been in the way of a few special letters and things of that kind. But we try to make the store, or the place where we do business, as good as we can, and when we get people there we try to keep them. And I think the same principle should be applied to the productive society, be-

cause if cooperation is simply for a few well-to-do farmers in a certain district, the name "cooperation" is not the name to be applied. If it will not try to get the poor fellow in, it seems to me it has failed in its mission.

CHAIRMAN: I should like to go on with this discussion, but we have so many other important questions to bring up that we will have to slip this over to some other meeting.

The next question is, I think, a very interesting one: "What difficulty have you experienced in buying 'trust'-made goods?"

I suppose "trust-made goods" means not only the trusts, so-called, or people who manufacture goods, but people who do not want to do business except through the present channels. I am pleased to say that many of them have changed very radically in the past few months. In addressing the Tri-Feed Association down in Wilkesbarre I made the assertion that the wise man in business today was looking for a direct route for his product, and a lot of the wise feed dealers commenced to shake their heads. I then read a letter addressed to this bureau. The writer said that his company (one of the largest in America) was ready and willing to make as favorable prices to organizations of farmers buying the same quantity of goods as to any jobber or distributor today. We have had several experiences in the bureau with what I call shortsighted manufacturers, who have said, "We don't want to do business with you; we would rather do it with you through the jobber." Now in almost every case that has come to my attention, I have found there has been a contract between the manufacturer and the jobbers in a certain locality, and where I have found that out I have said it was all right. If they have made a contract with jobbers not to sell their product direct, I believe they ought to keep their word. But I know from my own experience that the day of discrimination to farmers' co-operative companies is about over. This is a big country, and if you have the money and the business you can always find somebody with something to sell who wants to sell it to you about the way you want to buy it. I should not lose a minute's sleep over the fact that some company refused to sell you. Although we have had some difficulty, in two cases a letter from the Attorney-General's office, simply asking them if there was any

reason why proceedings should not be instituted against them under the Donnelly Act in this state, brought them to their knees and they immediately wanted to do business with these companies. I think that this is a bugaboo that no one of us has to answer tomorrow or the next day.

MR. BUSH: In purchasing fertilizers the fertilizer trust underbids everybody else; they have no trouble at all.

CHAIRMAN: I am very glad to say that just before this conference was called, Mr. Bowker, the president of the American Agricultural Works, called up and wanted to know if his representative would be welcome at this conference, and I answered yes.

MR. WARD: The Unadilla Cooperative Company started a little retail business in the village of Unadilla. A hornets' nest doesn't compare with the trouble there was around there. Here are two letters which explain the matter. First I applied to Swift & Company to sell their beef; I asked them for quotations, and here is their reply. Then I went to their place of business in Oneonta and asked them why they did not quote us, and stated to them that we were ready to pay cash before they shipped the goods if necessary, but would pay cash as soon as the goods arrived. The following is their reply to our letter asking why they would not quote us:

"June 25, 1914.

"Answering your letter of June 24th, signed per M. J. Ward, President, we have never refused to sell you meats or any goods. Also sent man to see you and he was advised by some person that the Farmers' Cooperative Company had discontinued business. Where you asked for quotations you asked for quotations on meats, but did not specify what meats you wanted. You do not give references nor state who is responsible for bills. Have had trouble collecting bills from cooperative stores and want to know who is responsible.

"Yours respectfully,
"SWIFT AND COMPANY."

This is from Sulzberger & Sons Company. I wrote them at New York; they referred my letter to Chicago and then it came back to Pittsburg, and the Pittsburg man wrote us that they had advised their Binghamton firm to send their man to us and take our orders. In about six or eight days after that along came a representative from Binghamton. I told him our system of doing

business and everything; I stated we would pay cash just as soon as the goods got there. He took my order for a quarter of beef. I went out among our customers and told them I was going to have beef, and I took orders for two or three quarters of beef. I have not seen the beef yet. Their letter follows:

" June 26, 1914.

" FARMERS' COOPERATIVE MARKETING COMPANY:

" GENTLEMEN: In reply to your letter of the 24th, in reference to your order not being filled, I want to say that on account of your being new to us our cashier had to call on Dun's and Bradstreet's. We will send it C. O. D. We would be glad to fill your order any time on the above basis, and assure you that we will give same our best attention."

MR. PINCUS: I have had similar experiences with implement concerns, and with a large poultry supply company, and can mention half a dozen other companies that refused absolutely to sell us goods.

MR. WILSON: I do not quite understand the letters of Sulzberger and Swift & Company. We have never had any trouble.

CHAIRMAN: I imagine that the idea of discrimination is not a real formidable antagonist. I know what Mr. Pincus says is absolutely true, but I think that before the movement is very many months or many years older your business will look pretty good to almost anybody.

MR. RITCHEY: Last spring some of our members thought they would like to put in their coal supply; we went around and saw the local coal dealers of Albany. Mr. McEwan's outfit knew absolutely nothing about coal delivery. I finally got in touch with a concern in New York and they gave us prices,—that is, for the winter. When we got ready to put in our spring supply I wrote to the concern for summer prices, and went around and took orders for a little over a carload of coal. We could have sold at least two or three carloads. On sending the second request for prices they wrote back and told us that they had more orders than they could handle, and could not accept our orders. It seems strange they were filling orders all the while and still refused or neglected to fill our order. It looks to me like discrimination.

CHAIRMAN: As long as they had not quoted you a price, it would be hard to bring an action against them.

MR. RITCHEY: They had previously.

CHAIRMAN: Did you accept them?

MR. RITCHEY: No.

CHAIRMAN: That would let them out in an action.

MR. RITCHEY: I went to a wholesale organization in Albany to see about supplies, and they said they had given us too much already and did not care to do business with us. We got our stuff from outside the city until we were established, and we are dealing with that party in Albany at the present time.

So far as the coal is concerned, I have been put in touch with a concern in Canada, and I received a communication from them a week ago saying that they were looking up prices and would quote us in the future.

MR. BRUCE: I represent the Wholesale Corporation in New York, which for several months has been investigating this matter of quantity buying on a great variety of things, and I find that in nearly every case the manufacturers are willing to quote prices and do business with us, but that the point turns around the question as to how much the buying power is. They base their argument on the fact that if we buy a carload of something they spend less in handling it, and they can afford to give a lower price; that if we buy small quantities for shipment to various places they do not care to take over that business, and that is why they have jobbers. In ninety-nine cases out of a hundred, if cooperative societies combine their buying power they can deal with anybody; although I have had three instances where manufacturers have refused to do business with a smaller organization. It is a fact that if the Wholesale Corporation had a warehouse and established itself on the technical standing of a jobber, and was prepared to buy in jobbing quantities, they could not sell. So while there will be efforts made not to sell, I do not consider the question a serious one; a little organization or team work will easily overcome that.

CHAIRMAN: We have another question as to "How shall orders be financed? The farmers do not want to pay until the goods are received and the seller does not want to ship until he is paid."

That sounds natural to most of us. I, personally, am willing to entertain any sort of an argument on this.

MR. MITCHELL (E. W.): I have tried in several instances, in asking for prices on goods, to see what advantage there would be in paying in advance and sending a check to them with the order, and in almost every instance we have in turn received a letter saying, "We are not at all interested in that; we will be glad to ship the goods with a bill of lading." It do not seem to be any inducement to them to have the pay in advance.

VOICE: In our local grange the membership is made up of people of very moderate means, and, whether they were or not, we adopted the principle of having everything paid for in advance. The purchasing agent figures out what a thing will cost, including his commission, and when the order is placed the cash accompanies it. He sends out a notice to all members of the grange that fifteen minutes before calling the next meeting to order he will take orders for coal or anything else. The people come there with their money and their orders, and we have advanced the argument that we can, on many purchases, save their commission in a cash discount. The purchasing agent can take that cash to whomever he buys from and save his commission and the cash discount. That is not true in some things, but in others it is quite true.

If I may refer back a moment to taking in outside people,—for instance, we have just put in an order for two carloads of coal; if we had not taken in outside people we would have been unable to make up a carload. We had to have two cars, because one of the cars was delivered on the siding, and incidentally it gave us some weight with the people from whom it was ultimately purchased.

In connection with the manufacturers' not being willing to quote prices, I might say that a couple of months ago we made a survey of the coal producers. But you cannot get coal from the mines; you have to buy through a broker. There were a number of coal dealers who replied, "We do not know what your business is." As a matter of experiment we tried one of the leading coal dealers in New York, following up with five letters, and have not had a reply yet; they are simply ignored. We sent an order along with the cash to one company, nothing having been said in

their quotations about a minimum or a maximum car. The best we could do was a 27-ton and a 30-ton car. The orders went in along with the cash, which I think was a certified check. They held it for about ten days and then sent it back and said the order was too small — that we would have to put in orders for 35-ton minimum carloads. Meanwhile there was another coal company in Rochester that seemed to be catering to the business of cooperative organizations. The orders were ultimately taken by them to be filled.

MR. POWELL: In Syracuse we have adopted a method that is a little different from that we have spoken of here, and so far it has been satisfactory. For instance, in a certain section, Baldwinsville, near Syracuse, a large number of farmers want to buy a carload of fertilizer; Mr. A wants so many tons, Mr. B so many, and Mr. C so many tons, making up a car. Each party gives his check and deposits it in the bank at Baldwinsville, to be drawn on when the car is delivered. We have had no trouble whatever in having cars sent on, nor have we had any trouble in getting credit for that length of time for any kind of goods. In that way the money is deposited and it is ready to pay whenever the goods are delivered. We have had different carloads for different sections from Tennessee and other places, and in every instance it has been satisfactory. I think it is a very good plan to adopt, because if you order on the say-so of Mr. A, B or C you will be safe in ordering. We make nothing and ask nothing but business for the best interests of the farmers, and they get every cent there is in it, so that they get large returns.

There is one thing I was very much interested in, and that is this matter of members and non-members of an association being benefited. For instance, we have furnished about 150 to 250 farm laborers this season without a cent's cost to the employers, and we have not asked whether they were members or not. And, besides, we are in a peculiar situation, as I think many farm bureaus are. We have received a great deal of assistance from the board of supervisors, and we feel that the public ought to be benefited, whether they are members of the farm bureau or not. So, on that ground, although we have this difficulty, it is an in-

ducement for people. Yet I think the great office of the bureau, which is supported by the public, is to assist.

QUESTION: I should like to ask how many outsiders he has?

MR. POWELL: I do not know, but not many. Nearly all persons who have received a benefit have become members of the bureau.

QUESTION: This is not a cooperative society you are talking about; it is a farm bureau, is it not? Where the state and county furnish some of the funds, of course every man in the country has a right and should have a right, irrespective of whether he belongs to the association or not. But with an incorporated society it is a different thing altogether.

MR. POWELL: I was merely explaining that the method would apply to any society.

CHAIRMAN: I think we have drifted back to other questions, but I do not take exception to anything Mr. Powell says, because I appreciate that the farm bureau association in each and every county of this state has been of wonderful assistance in forming cooperative associations; it teaches the farmers the benefit of collective effort, and is entitled to a lot of credit. I think the experiences of these farm bureau men, and the men connected with the farm bureau, show the way to future benefits through some cooperative organization.

The question as to how these orders should be financed is the question we were considering. What interests me is the fact that a great many farmers are not in the financial position to deposit a certified check in advance of the business that they might do, and I am inclined to think that, in the very near future, the business men of a cooperative company will have to provide credit facilities so they can take on the very profitable farmers' credit business. The farmer who buys for cash, in my locality, is the hardest man to satisfy, and the fellow whose note you can take for the first of November or the first of December is the fellow there is money in, and he pays the fancy prices; not having the money, he pays in long-term credit. I think the time will come when these cooperative companies will see the benefit of trying to finance the farmers of their community.

MR. WARD: We hit upon this plan of financing the company: We let the farmers sign for a share of stock; they give their name as collateral security, and this is the paper we use:

"Whereas, the Unadilla Company being desirous of discounting your note, do hereby, in consideration thereof, jointly and severally guarantee the payment of said Unadilla Cooperative Company's note so discounted by you; the whole amount of said notes given by said company and discounted thereunder, not to exceed the sum of 75 per cent. for each person signing, [that is a safety factor for any that will not meet their obligation] and our respective liability hereunder not to exceed \$100 for all notes. We jointly guarantee the payment of said notes, agreeing to pay said notes as they severally mature, to the extent above stated."

We give the signer an option to loan us \$100 at six per cent. interest or sign this paper, and we can use this money. We have never had to use it. We paid in \$500. But when the farm produce comes in the fall, if we want it we can go to the bank and borrow what money we want.

In buying and selling we exact a 10 per cent. commission on all that is bought or sold, to be taken in stock, until we have sufficient funds to carry our business. We pay 6 per cent. interest on that, and until we can get enough we shall exact that commission of the members who buy from or sell to us. There is no question that we paid more than 10 per cent. for everything we have bought thus far. It is in the nature of an investment to the farmer to put his money into this; he is getting 6 per cent. interest on it. There is no profit to come from it. Our intention is to cooperate with the consumer as well as with the producer — to divide up what we can save by strict economy in distribution. The economy used in distribution is all that there is in cooperation.

CHAIRMAN: I think that is a very excellent system, and I hope the delegates here who are at all in the dark about how to raise money will meet Mr. Ward and find out the arrangements.

VOICE: Lime is a product that is being used. If the farmers will guarantee enough, the companies are offering to wait as long as the local companies do.

CHAIRMAN: I think you will find when you go after this business that if you can only make it concrete to the dealer — perhaps one car or two cars — you will get as good terms from him as you could naturally expect. I think the trouble is that we cannot present a definite amount of business.

VOICE: In regard to the lime business: We have been able to buy lime this spring — perhaps upwards of ten carloads of lime — at a very satisfactory price, and have had no trouble to get credit. We have several companies that are perfectly willing to extend the necessary credit and wait for the money.

MR. WILSON: Would the credit union be any benefit to the farmers in relation to buying?

CHAIRMAN: I am inclined to take middle ground on the credit union proposition. While I think it is an excellent plan for financing short-time loans, my connection with the bank has been one of perpetual borrowing, and I have not found any difficulty in obtaining that credit. I imagine that the short-time credit, especially under the new Federal Reserve Act, will be even easier than it was in the past. So the credit unions, as I see it, might help in some localities; but most of our local bankers, if they are not farmers, own a farm or hope to own one. These farmers' companies can obtain quite satisfactory arrangements with local banks without the organization of a credit union.

We have a man here who knows all about credit unions, and I know you will, some time in the morning session, or tomorrow afternoon at the round tables, direct a number of questions to him. I refer to Mr. Pincus. The Jewish Federation of Farmers have these credit unions in many states, and he can present the question to you in a very concrete form. It is only my opinion that the farmers' organization, at least, do not need them now.

CHAIRMAN: The next question I think we should take up is this one: "Shall the local societies concentrate their buying through a central wholesale association, and shall they be required to become a stockholder of this wholesale corporation?"

In reply, I should like to say to both the questions, I think that as individuals obtain benefit and profit from coming together and pooling their buying or selling power, so will the various locals obtain profit and benefit by pooling their orders for certain supplies. Perhaps it seems a long way off to most of you, yet I think that if you would take the trouble to investigate the Wholesale Corporation and the prices it is able to offer, you will see that you could still make more money. I know that the Wholesale Cooperative Corporation is eminently officered and well managed. The only

thing is, as I tell Mr. Bruce (who is vitally interested in it), that it may be a week or two before there is enough business crystallized around any one union or local that they can secure and transfer to him. As soon as that comes, I think it will be very necessary for each of these cooperative companies to belong to some wholesale organization. I think they should be stockholders in it and should be interested in it, as each member should be interested in his local company, and to the same end. I know Mr. Bruce has told me several times that what he wants is business, and he wants it so badly that he will go after it, but he must know the approximate amount.

MR. BRUCE: An investigation of this whole subject, which has occupied my time for about two and one-half years, or at least very soon after it was concluded that cooperation was the remedy for this whole general condition, shows that many societies are failing (as many have failed) because of a weakness on the purchasing side. They have been isolated and not associated in any way with any other society, and in the case of stores, especially, they have been buying in small quantities at the highest prices, and then trying to compete with the chain stores like the Great Atlantic and Pacific stores. It is apparent that in the consumers' stores, at least, the ownership of the goods at the right price is absolutely vital, and that really is the reason why this wholesale corporation was started.

There are twelve or fifteen societies in this state or New Jersey. The farmers are also interested as consumers. The wholesale society can also, I believe, act as a clearing house and the selling agency. But at all events, we organized. Mr. Seth Low, who is the president of the Bedford Farmers' Society, and Mr. William Church Osborn are interested in it. The other directors represent stores and are all subject to removal or change at any special or yearly meeting of the stockholders, so the whole organization can be changed at any time. The Montclair store in New Jersey has a director, and the Brooklyn store has directors. The chief work we have done so far has been to make investigations as to what can be saved by quantity purchasing, and it is very evident that on nearly everything it is possible to save from 10 to 25 per cent., which in the aggregate makes an enormous amount of money.

This gives an opportunity to do business and get started in the right way. Hence we believe that the capitalizing of the wholesale society and furnishing capital, and the promotion of the wholesale work by the locals, is essential to the growth of the movement. And of course since it is purely cooperative, and since it cannot have any business or support except as it comes from the cooperative societies, we think that the impulse ought to come from the consumer.

It is evident that we can get low prices. It is also evident that the wholesale corporation must have orders in specific quantities. We also discovered another point, which relates to looking up credit. We find that the manufacturers are very much more disposed, as it simplifies their business, to deal with a single agency and have only one credit to look after; they are willing to make concessions, on the ground that they have only to look to one agent for financial responsibility. That is a perfectly reasonable proposition. If you had 50 or 100 societies, each of which had to be investigated separately, that gives the extra work to credit men of these manufacturers and other distributors. Another thing is that the market in New York City is very much broader than anywhere else.

I want to present this subject to the conference for such action as they want to take. The wholesale corporation has no money or income except as it comes from the impulse given by the locals. It is purely cooperative. It is obvious that, to finance fertilizers, liquid capital is needed. A wholesale should have \$10,000 to \$25,000 at the present stage of the movement; that is, the local societies should deposit their money in the bank to the order of the wholesaler, this capital being needed to carry on the operations during the thirty-day period. At present the society has no credit.

MR. BELLINGHAM: I might take the floor for a few minutes and tell what our criticisms are of the wholesale corporation in New York. The wholesale in New York City was born before its time. Cooperation is not founded on philanthropy; both the energy and the money must come from the consumer or purchaser, and the wholesale corporation will be a natural result of the grouping together of those who do the work. I appreciate the

energy and foresight of Mr. Bruce, but it has been far too foresighted; if he had allowed the thing to come along for a short time he would have solved it. There can be no wholesale co-operative society instituted; if they had just waited, the natural trend of events would have started it, as I said before. The fun of it is they were to start a jobber's place and there is nobody to buy from them. We received a very inviting and alluring letter asking if we would cooperate with them in buying carloads of canned goods; we are looking for cooperation all the time, and said "Certainly, send up your prices." We find we can buy two cases at better prices in Schenectady than from them in carloads.

CHAIRMAN: I am absolutely sure that these gentlemen agree; they do not sound like it, but they do. I think both these gentlemen agree, and if we could get them in a room together I think you would find them doing business in twenty minutes. I have always said that if I could only have the pleasure of bringing in a few of these consumers and show that they are hard-headed businessmen, they would realize that this is a hard-headed proposition. No wholesales can exist unless they can do these things; the wholesales will never be able to give you these favorable prices until you have cooperated as a unit with them.

I think just now we could give a few moments' time, with a great deal of profit, on how to focus the business of these various producers' cooperatives, and this question would also apply to consumers. The Kinderhook Pomological Society have, to my mind, the very best system of finding out what their members want and what they will pay for it, of any company in the state. If Mr. Ogden can briefly tell us about it I should like to hear from him.

MR. MITCHELL (E. W.): Mr. Ogden was not able to come up today, but I can very briefly give you our plan. We have among our members some who have small places. The directors meet about twice a month, sometimes oftener, and look over the field to determine what things will be needed during the next month, or even further ahead. We look for prices; we look to Mr. Bruce and find the best prices on fertilizers we have seen. When we have the prices we send out whatever notices we have to our members. This serves a double purpose: it gives us time to get

our prices, and it reminds our brokers and members of the things they will want, instead of allowing them to go along until the last minute. A circular letter is the method we are using now to reach our members.

In addition to that I should like to say that our organization has, as one of its fundamental principles, the education of its members, not only along the lines of cooperation but more along the lines of better farming. Once a month we hold a meeting which is given over entirely to the discussion of some topic — how to grow crops, or the use of different machinery or implements. At the last meeting we discussed the packing law very thoroughly. In this way members who are not interested so far as the business goes, and who would do business with us from the outside only, are drawn in for this educational program. They are all interested in it, and by laying out the plans and sending notices we keep in touch with our members almost constantly.

I think I have some blanks with me that would show how we carry out the details of the business. We have a printed slip covering practically all the supplies and seeds and fertilizers that will be needed, and on these blanks, from time to time, we send out a quotation of our prices at that season of the year, filling out the blank opposite the things they will need. This method saves a great deal clerical work. It is not at all expensive, and for an organization just starting it is very satisfactory to have these printed blanks with the list of articles that are needed and send out the quotations.

The orders are taken in triplicate. A man sends in his order and receives a copy of it; a copy is kept in the office, and a copy is given to the man the goods are to be taken from. If we are buying seeds from a local seedsman or supplies from a local manufacturer, he gets a receipt which is an order to give to the bearer so many seeds or supplies. In that way we have payments in advance. The buyer has a copy, and the loose leaves are kept on file in the office. It is a triplicate system.

QUESTION: How much profit do you add to the average cost?

MR. MITCHELL: That varies. On some fertilizers we can add 40 cents to \$1.00 a ton. We are avoiding the cutting of prices. We make no uniform per cent., but we exact a small profit. On

barrels we are only making a quarter of a cent profit, and when the question of financing comes up further I may mention what a tangle that got us in. We make no set rule for profit.

QUESTION: What is the cost per hundred to get out those duplications?

MR. MITCHELL: Mailing, of course, is a cent apiece, and the investment was \$32.00, and an Underwood duplicator, which works very satisfactory; the only other cost is typewriting the letter, and practically no cost for copying. Practically there is no cost except the postage and the writing of the letter. It is a cooperative company under the new law.

MR. MITCHELL (C. C.): May I say a word about the purchasing of coal? The society which we formed has been interested in getting coal by wholesale, and we were advised that we might find out something by the experience of the state. The hospitals and prisons of the state buy 320,000 tons of coal every year. That sounds like an enormous amount, but when we came to look around we found that there were two institutions that would take about 1 per cent. of that amount. They are receiving bids on this coal from about twenty-five concerns; about half of them are local dealers in the vicinities of these institutions, and the other half are miners and shippers of coal. The prices they have bid have been very favorable indeed. All this coal is let by contract, just the same as state roads are let, and the deliveries are made at any time of the year that the coal is required, and the rates that are established in these lettings apply throughout the year.

Now that shows that if one little community with two institutions and a few individuals combined can take 1 per cent. of the total amount the state takes, and if the state is having bids from twenty-five people, what the possibilities would be if we were to federate. If our society expanded as much as we could, it seems to me we ought to take 5 per cent. of what the state takes. This is a trade not difficult to work up, because almost everybody uses coal.

I think we ought to consider at this conference what we might do by working jointly toward doing this business together. I am certain from our experience that we will have no difficulty in

getting rates from these companies. We found that such companies as have been referred to will not do business with us; neither will they care to trade with any of the large corporations, perhaps; but the members of the mining companies are anxious for that trade if it is large enough. We have received prices within the last two or three days, through letters written by our vice-president, from twelve different concerns. We chose, not those people located in Auburn and Rochester and similar places, but those who were in the pure business of mining and shipping coal, mostly in Philadelphia and other Pennsylvania districts, and we have replies from nearly every one of them. Their prices range so that we can make a saving of anywhere from \$1.50 to \$2.00 a ton.

QUESTION: In getting out these estimates, what percentage of the estimate do you get in orders? Supposing you do get a reasonably satisfactory price, what percentage do you get?

MR. MITCHELL (E. W.): Usually 90 to 95 per cent. of the order. It is taken in this way: We will inquire in our letter, "Tell us how much coal you want, or tell us how many barrels you want," and they will send in an estimate of what they will use, both in a minimum and a maximum. We usually exact that. We usually get about 75 per cent. answers — 75 per cent. send in their estimates, which we collect and add. We write to our agent or whomever we are buying from, "Please quote us on a minimum of three cars or maximum of five," so that we have a quotation on the minimum and maximum. Then when the orders come in we can take his quotation for whichever one we want. We find that very satisfactory.

QUESTION: You said something about sending orders to local dealers. What arrangements have you?

MR. MITCHELL: We found on inquiry that our local dealer could supply a large number of different seeds. We get from our members 15 per cent., and sometimes payment in full, for the order when it is given. We give our local seedsman the order. We first give him our estimate and get his quotation, and then give him our order accompanied by the third sheet of these triplicate blanks; so that for every man's order he has a corresponding order from us. When the man ordering the seed is

ready he goes up to the store and hands in his slip, and if it corresponds he gets his seed and goes away. As soon as the seedsman presents his two slips to the association a check is given in payment. The order is given to the seedsman, and when he turns in his order and the duplicate order he has received from the farmer, he gets his check in return for those two orders, and we have the three on file again.

QUESTION: How do you figure on your unloading charge?

MR. MITCHELL: You must not think that we are conducting such a large business that we have a warehouse and manager and laborers. We make no unloading charge. They are very good about all coming up there, and we unload it ourselves, and if the farmers do not get there to unload it, usually the president, vice-president and secretary do the unloading.

CHAIRMAN: I want to say that that is practical cooperation. The first and most encouraging letter the bureau ever got was from the Schenectady Cooperative, and in that letter was the famous line in our primer, which said that they were directors daytimes and grocery clerks nights.

VOICE: I should like to call attention to this matter of shipments. These matters that come up all have a bearing on the question of accounts.

CHAIRMAN: That is exactly the thing that I was going to talk about next, this uniform system of accounts. I think there are not many here engaged in the producer's end of cooperation but will get pretty close to Mr. Mitchell. I am inclined to think it is a practical way to get this volume of business where you can handle it. That brings up the question of uniform accounting. We must devise some system of accounting that will be so obviously effective and simple that when we introduce it at our next conference, perhaps, or submit it to you as individuals, you will take it up the way I think you will this system of getting orders. If it is good in its economical feature, and if it is simple, it is going to be uniform more or less. The way to get business is the easy way and the simple and efficient way. I should like to go ahead with this subject of uniform accounts.

MR. BUSH: Each exchange has this same system of triplicate

orders and triplicate receipts. The grower signs the order and he agrees to take whatever supplies are called for on that order at the prices called for, and pay for them at a certain time. It simplifies the keeping of the account, there is no question about it. We follow the same plan with the receipts; when he comes to the car to get his stuff he signs the receipts in triplicate. The manager of the local exchange gets one copy and the grower gets another, and another comes to the Eastern.

MR. WILSON: That just shows how discussion brings about things. The fact of the matter is that this system is the system we use in Schenectady. We have a uniform bill-head we supply our merchants with; we also have a requisition form and we take a copy of that in carbon. We send that requisition along with the bill-heads to our merchants, and then we tally up the copies. This requisition form covers the whole field, so long as there is a central body. I know that is just exactly the system that applies in the cooperative grocery business we carry on.

CHAIRMAN: Mr. Bruce says to me that the wholesale corporation is using the same system. I am inclined to think that one of the most encouraging things about this whole conference is that we find we have been battling with our own little problems, and we have made mountains out of mole-hills simply because our experience was somewhat limited in this business. I am highly delighted to see that so much good can come out of Schenectady and out of New York City and out of Kinderhook. It looks to me though, as I say, that this thing is going to turn out to be one of these mole-hills when we get close to it. I think we will find that this cooperative work lends itself to a certain system; it must be accurate and must bear scrutiny. We must not expect too much. As Mr. Bush has told you, I know personally that up in the western end of New York this system has been in successful operation.

MR. RITCHEY: It seems quite important to me at this time, and I should like to ask if the members, or delegates, of this organization will receive a copy of the minutes of the proceedings?

CHAIRMAN: We have what I am inclined to think is an over-worked stenographer. I hope to keep him as busy on this profit-

able subject as we have talked this afternoon. We are going to put this into a bulletin as soon as he recovers from the shock of this afternoon's experience. I should like you gentlemen to take the trouble to leave your names and addresses; I think most of you have registered. As this work goes on we expect to have, from time to time, bulletins of timely interest, with more or less news value. We want to do that. But until this conference took place I had my head full of Kinderhook, when I was over in Kinderhook, and probably got it shocked out of me when I went to Rochester. This conference and these minutes will be the foundation of what we hope will be a rather intelligent series of bulletins on this cooperative work; that is one of the things we hope to do. As I told you this morning, our hopes will be just hopes unless every man here will give the best that is in him. I want to say again that the sample of the merchandise that has been given out today makes me think it is going to be a pretty good article.

MR. WILSON: I should like to offer a suggestion about the loose leaf idea. There has been one objection to it — that we get them all sizes. I think $8\frac{1}{2} \times 10\frac{1}{2}$ " is about the size of a loose leaf generally used. A 3×5 is a very handy size; it is very much more easily handled.

MR. WARD: I found in my experience that the best way of keeping books for a manufacturing business, or for any business, is to use four sets of numbers; one set for all your invoices that come in for your purchases, one set of numbers for every article that you sell, another set for your deposit slips, and the check carries the other set of numbers. If you will follow that in your business you will reduce the amount of labor at least 60 per cent. over the old method. You take, for instance, an order book. You enter a man's name and his order; you put your consecutive number on. We stamp our ledger on the left hand side of the columns down; we stamp a thousand numbers or so ahead, when convenient. Then this order goes on the page; we very often have three or four pages ahead. The right hand page we keep for data in regard to the collection of those accounts, if we have a charge account; for instance, if we make a draft today, or send

a statement, we simply put that down. When the draft goes out we hold that account in suspension until the draft is paid, and in case the draft is returned we write a nice, pleasant letter. And we collect in that way. But you take that ledger with these numbers down on the left hand column, and you will simply write the man's name. If you want to know the town or county or state, you can refer to your order. Then when we ship out we have what is called a merchandise book, and we stamp the number on that. We sometimes write the man's name and sometimes stamp the number. You can reduce the work at least 60 per cent. in that way.

We have our index book and we stamp the numbers opposite that man's name, and if you will follow that system you will save a lot of work.

CHAIRMAN: Gentlemen, I think that we have put in two hours and a quarter pretty solid talk, and I am going to ask that we suspend now for the afternoon, carrying in mind that the dinner this evening at 7 o'clock needs every one of you. We will bring up such questions as I think have not been thoroughly discussed, and which you do not understand, through the medium of the question box at tomorrow morning's session. It is a good deal of an allopathic dose, but we must not be discouraged.

Meeting adjourned.

DINNER, WEDNESDAY EVENING, JULY 22

MR. COLE: Gentlemen — We have with us tonight some very distinguished guests. It gives me pleasure to appoint and have preside over our festivities a real cooperator, the Honorable Calvin J. Huson, Commissioner of Agriculture.

MR. HUSON: Mr. Cole, and Gentlemen — I really am somewhat at a loss to know just what is expected of me on this occasion. This dinner has been so delightfully informal up to the present time, I hope my being introduced to preside will not make it into a formal gathering. I am assured, however, that a speech is not expected of me, fortunately for myself and for you as well. I know you are not here to listen to me tonight, for you are honored by the presence of the Governor of the state; and if you should, by any chance, expect any remarks from me you

will necessarily be disappointed, for Governor Glynn is so full of this subject of cooperation that he has had me chasing all over the state during the past ten days, trying to cooperate with the farmers of the state in the destruction of grasshoppers and army worms; so I have had no time to prepare a speech.

We have been giving a great deal of attention in the state of New York to agriculture, almost entirely devoted to the production of farm crops. We have established colleges and schools, and we have institutions and farm bureaus and all sorts of activities that have been devoted almost exclusively to making our farms more productive, our crops more bountiful. Yet after all, it does not make very much difference what the products of our farms may be, if conditions are such that we are unable to market our crops at such a price as will afford us a fair degree of profit for the money invested and the labor employed. And very lately we have turned our attention to the other great question — not that we are to lessen our activities in the line of production, but we are to give the other great question of the marketing of our products some of the attention it deserves. And that brings us up to the gathering that has met here this afternoon and this evening — the first of its kind ever held in this state, if not in this country — the question of bringing men together to cooperate for the purpose of solving these questions. And we are very fortunate tonight in having Governor Glynn present, who is going to speak to you, because you will all agree that it was Governor Glynn that gave life and vitality to this great subject. It was he who put the punch into it that has resulted in this conference here tonight, and I now have the pleasure of presenting to you His Excellency, Governor Glynn.

ADDRESS BY GOVERNOR GLYNN

Gentlemen — I am here tonight because I believe in cooperation, and especially because I believe in the particular form of cooperation which is the object of this conference.

If I were a producing farmer I would be here to discuss the best means of distributing the produce of my farm. If I were a private citizen anxious to find an economic answer to the rapidly mounting cost of living I would be here to assist in devising an

effective method of purchasing the necessities of life with the least possible outlay. In either case I should have my shoulder to the wheel, ready to prove by deed as well as word that I believe in the principles of cooperation.

As a public officer, responsible on the one hand to the producer and on the other to the consumer, sworn to promote the best interests of both, I have a two-fold concern for the success of this conference. And whatever influence I may possess by virtue of my office I am here to exert on behalf of the practical cooperation which you are planning.

The forces which have brought you together are not confined to this state or to this nation. In every quarter of the world men are striving to achieve the ends at which you aim. German farmers are borrowing money through cooperative banks to purchase seed from cooperative societies for crops which are marketed through cooperative channels. In Ireland, the pioneer in cooperative agriculture, the Irish farmer is making cooperative farming pay. In England a cooperative society with 2,000,000 members is doing a yearly business of nearly \$176,000,000, with a profit to its members of over \$5,000,000 a year. And Japan can point to cooperative silk stores more than two centuries old.

FARMERS ALIVE TO NECESSITY

During the past year I have been powerfully reminded that the farmers of New York are alive to the necessity of some radical change in the method of distributing and selling farm produce. Farmers in every quarter of the state have informed me that the number of abandoned farms will be increased unless in some way the farmer is enabled to secure a better return for his labors. The fact that for every dollar the consumer pays for farm produce the man who raises it receives but 35 cents indicates that there is something radically wrong in our present methods of distribution, and it is significant that in this conference there are representatives of cooperating consumers as well as of cooperative producers. The need and the demand for change are evident in this place from two sides of the economic triangle.

Legislation can do something to assist in the change to better things, but all it can do is to assist. The real progress must come

from those who will win or lose by their own activities. No assistance can match independent effort. There is no help like self help.

STATE'S SHARE DONE

During the past year the state has done its share in assisting the farmer. Among other things it has created a department of foods and markets, which will supervise all places where farm produce is sold, which will provide licensed and responsible auctioneers, which will regulate the grading, handling and storage of all foodstuffs and which will publish a daily bulletin to keep the farmer posted on the current prices and the markets of best demand. Furthermore, this department is especially empowered "to assist in the organization of cooperative societies among producers and consumers."

In addition to the establishment of this department the state has taken steps to provide the farmer with a credit system suited to his needs. It has made provision for a land bank, organized on the cooperative basis of the saving and loan association, which can make long time loans to the farmers of New York. The mortgages on the farms of New York amount to approximately \$100,000,000. This land bank would save the farmers of New York \$24,000,000 if present mortgages were converted into ten-year amortization loans and \$82,000,000 if converted into fifty-year amortization loans.

Besides the department of foods and markets and the land bank, New York has given definite and practical proof of its desire to secure for the farmer the benefits of cooperation. It has appropriated \$20,000 for the express purpose of organizing cooperative agricultural societies in every part of New York, and a corps of men are now going through the state to give practical and immediate assistance to the cooperative movement.

THE FARMER'S TASK

The state has done its part to make easy the farmer's progress toward cooperative independence. But it has merely opened the road; the farmer himself must walk it. You can't legislate a man

prosperous any more than you legislate him happy. And the cornerstone of cooperation is the activity of the individual.

This conference is a cheering indication of the individual activity demanded of cooperation. If the representative men of the state, the men who must form the nucleus of any active organization for economic betterment, are prepared to enter into a broad plan for cooperative progress, then cooperative results are assured.

You have a definite object to obtain. You must agree on a definite policy and a definite division of energy. Your object is to bring the producing farmer and the distant consumer into closer touch. Your method is through the formation of cooperative societies of farmers on the one hand and of cooperative societies of consumers on the other.

Pooling their efforts, the cooperative farmers will send their produce to a central shipping station under the control of the local association. Here their produce will be graded, packed and labeled. Arrangements will be made to supply first the demands of local consumers. The balance can then be shipped in carload lots to the centers of best demand. One central station equipped with cold storage facilities can accommodate the surplus produce of several smaller stations. The various cooperative associations throughout the state can organize selling agencies in the larger cities, which will keep themselves advised on the condition of domestic and foreign markets and be ready to direct all shipments to centers where the demand is strongest and where the best prices prevail.

WOULD BANKRUPT STEEL TRUST

In the past the farmer has been a manufacturer who has bought his raw material at retail and sold his finished product at wholesale. It is small wonder that he has found it hard to keep a balance on the credit side of his ledger. This method of doing business would bankrupt the street trust, pauperize John D. Rockefeller and start Andy Carnegie building a thatched cottage for himself among the hills of Scotland instead of erecting marble libraries in the cultured centers of the world.

The cooperative plan will permit the farmer to purchase his feed and fertilizer in carload lots and sell his ripened produce at a price approximating what the consumer pays for it. In his turn the cooperative consumer will reach out to meet the cooperative farmer. Through cooperative stores the consumer will purchase his foodstuffs at wholesale prices and secure for himself whatever profit there may be in the retailing of this produce. Eventually, if the initial efforts are successful, the cooperative farming societies and the cooperative societies of consumers will deal directly one with the other on a basis which experience may show to be most equitable to both.

A PRACTICAL SCHEME

There is nothing vague or chimerical in the program I have just outlined. There is not a single detail which is beyond the power of cooperation to effect. There can be no question of the benefits to be secured through this cooperation. All that is needed, and this is the foundation of the whole cooperative structure, is a widespread appreciation of the methods and objects of cooperation and a lion-hearted determination to overcome every difficulty in the path of cooperative success.

With this widespread and intelligent appreciation, most of the difficulties will vanish. The failures of cooperation have seldom been due to any other cause than indifference and defection on the part of the cooperators. Against every outside force cooperation can successfully battle. I recall an instance in Kansas where some fifty farmers established a cooperative grain elevator. The grain trust tried to break it down by buying grain above the market price. The farmers sold to the trust, but for every bushel they sold they paid a cent into the treasury of their cooperative venture and the trust gave up the fight.

The dangers to cooperation come from within, not from without, and a cooperative movement is no weaker and no stronger than the intelligent determination of those engaged in it.

Cooperation is not intended to destroy the middleman. The service which the capable and efficient middleman renders to society cannot be wholly duplicated by any cooperative system.

There will be competition between the private and the cooperative store, but I believe it will be healthy and not a destructive competition. When cooperation is an established fact the slack ends of distribution will be taken up, and the consumer and producer will share in the benefits of greater efficiency. But beyond securing the benefits of intelligent distribution and healthy competition the average consumer will continue his relations with the alert middleman who supplies his wants with graciousness, ease and dispatch.

I am told that this is the first conference ever held in the United States between cooperative producers and cooperative consumers. And this fact imposes a proud responsibility upon each man who has taken part in it.

IN THE VANGUARD

You have placed yourselves in the vanguard of a mighty movement, which is circling the world, gathering strength with each new dawn. Cooperation is in the air. We find it in the office of business and in the halls of legislation; we find it in the new gospel of social justice and the old epistle of human brotherhood.

You have assumed the responsibility of assisting the people of New York to the realization of practical cooperation. I hope with all my heart that you will carry from this conference a practical conception of the difficulties that confront you and the rewards which wait upon intelligent success.

It is your duty to impress upon the members of your several societies that the only way to cooperate is to cooperate. Cooperation must walk upon its own legs. Its only salvation is independence. When it goes to tangoing into politics, flirting with feminism, chumming with pietism and winking at communism, destruction awaits it just around the corner. It is a business proposition pure and simple, not a tittle more, not a whit less. It cannot convert earth into heaven, Utica into Utopia or a St. Lawrence county farm into Fifth avenue. It waves no magic wand. It has no prestidigitator's art. It possesses not the alchemist's trick of turning stone into gold. But it does do what Benjamin Franklin said every man only had to do to become a millionaire—it

takes care of the pennies, and through this care the dollars take care of themselves. Extravagance may be a virtue among the rich. It is a crime among the poor. Thrift is more lucrative than luck. Efficiency is the slogan of the hour, and efficiency means saving from waste. Not long ago the whole country was interested in saving the useless motions a mason makes in laying bricks. We have passed a workmen's compensation law to save a waste of limb and life and energy. And by cooperation we propose to save for the farmer the just return for his labors, of which he is robbed by wasteful and extravagant methods of distribution.

NOT NEW OR UNTRIED

There is nothing new or untried in the broad principle of cooperation. In the last analysis cooperation is only another name for civilization. As John Stuart Mill has said: "Almost all the advantages which man possesses above the inferior animals arise from his power of acting in combination with his fellows and of accomplishing by the united efforts of numbers what could not be accomplished by the detached efforts of individuals." From the dawn of history men have cooperated to secure the benefits of safety, progress and justice and have called that cooperation "government." They have united to produce the manifold necessities and luxuries of life and have called that cooperation "industry." They have talked together of the eternal mysteries, they have gathered together to worship the Supreme Being, and their name for this sacred cooperation is religion. The greatest and most lasting undertakings of the human family have come in accordance with the Biblical injunctions, "Bear ye one another's burdens," and "Ye are members one of another."

What has been accomplished through cooperation in other fields can be accomplished through cooperation in the field of agricultural reform. All that is needed is the intelligence to perceive the benefits to be derived and the determination to secure these benefits. Today there are half a hundred cooperative societies making successful progress in this state where a short year ago there were but three. The hour has struck. The time is ripe for an extension of cooperative efforts which will place New York where it belongs — in the front rank of the cooperative movement.

Our fields are fertile, our people are the peers of any in intelligence and industry, and there is no better cause in which to struggle than the cause which has for its end the easing of the burdens which press upon the heavy laden. There is no worthier fight than the fight to secure more and better food for a people who are clamoring for relief, and those who are engaged in the good fight, who are dedicating their efforts to cooperation as the surest and wisest medium of economic progress, may well take for their motto the inspiring words of Edward Everett Hale:

“Look up and not down, look out and not in, look forward and not back — and lend a hand.”

TOASTMASTER: While perhaps we might bring this meeting to a close with the magnificent address of the Governor, I want to assure you we have at least one orator at each table in this room, and I am going to give some of them an opportunity of proving it, so I hope you will all remain.

I am first going to call upon the distinguished farmer who occupies a seat at the extreme end of this table, and if he can speak on cooperation as well as I have heard him speak on several other subjects, you will be very well repaid in giving him very close attention. I have the pleasure of presenting ex-Senator Ferris, of Utica.

SENATOR FERRIS: Mr. Toastmaster and Gentlemen — I cannot think of anything that would be a more sublime anti-climax than to call upon me after Governor Glynn's magnificent address. I suspect that my good friend “Cal” Huson looked around the room and said, “Now after the Governor has quit talking I will pick out the worst speaker there is, so we can get a fresh start and let the other fellows have a fair chance. No man could follow Governor Glynn and have anything to say anyhow. But as a matter of fact, when the toastmaster told me he wanted me to talk a few minutes I said, “What do you want me to talk about?” and he said, “About three minutes.” Of course, as is usually the case, I listened to the Governor so intently that I completely forgot that he was apt to call on me afterwards.

Now my job is to fill in time enough so that my other good friends can think of something to say. Somebody said that “Cal” Huson is a real cooperator. He has demonstrated it by

making me help fill up the evening. I don't know a thing about cooperation, and very little about markets. Of course I am past master in the art of farming; I have one.

Two or three things the Governor said appealed to me. One thing was that there were two hundred millions on mortgages. I raised my hand and said, "Thank heaven, I don't owe it all."

To be a trifle more serious. I live in Utica, and it would be a poor return to you gentlemen who have come so many miles to Utica if I would not get up and say just a little something about markets. I do think that the Commissioner of Agriculture has shown exceptionally good judgment in calling this conference for Utica and having Governor Glynn here. I don't want to inject any politics and wouldn't under any circumstances; but I think that all of us agree that Governor Glynn, whatever his political affiliations may be, has always had an open mind for every farming problem, and has always been intensely interested in everything that he thought would be for the benefit of the farmer. It was peculiarly fitting, in my judgment, that a man who had advocated and signed the Land Bank bill, and who had signed the bill for cooperative societies, should be the man to attend the first conference and open it with his speech. It was also fitting, Mr. Commissioner, that you should have called this meeting for Utica, which for forty years made the market for the world on cheese. It was only a few years ago (I can remember the time) when the old Baggs Hotel market made the market in Liverpool. It also, I believe, made the hop markets for the world for a long time.

Utica has grown up from an agricultural section. It is the agricultural surroundings that have made Utica what it is. And we have, in the past, had some things to do with the marketing of farm products here. In my own judgment, the marketing of farm products has fallen upon evil times. The Governor says that only 35 per cent. of the money received for farm products goes to the tiller of the soil. (My own experience, by the way, is somewhat less. For the manufactured product that I put out, I receive less than 35 per cent. of its ultimate selling price.) But if that be true, this selling charge on manufactured products is too high, because those of you who are interested in manufacturing plants know, as I know, that in the selling of an article

(unless it is some patented article, or some novelty such as a breakfast food or chewing gum or something of that kind), if your advertising and selling expenses exceed 25 per cent. of your total output, then it is too high for good, economical business. And a manufacturing business that paid 65 per cent. of the price of the output for the selling and advertising expense would not survive bankruptcy so long as the farmer of New York State has.

Again, it has been suggested, and very properly, that the conditions of the farmer do change. It is some twenty-odd years now that I have been following the profession, somewhat on the side. Most of the time I have needed cooperation, Mr. Commissioner, and generally of a practical kind with my bank, or I probably would not have been able to keep in business that long. But there always had to be cooperation on somebody's part to pull the thing along, especially toward the latter end. The reason is, as I can see it, that it costs more money today to produce a quart of milk on my farm than it did twenty-five years ago. You all know it, and that is why many of you are here. I don't know what the answer to this difficulty is. Either the consumer must pay a larger price for the things I manufacture on my farm, or else I am not going to keep on manufacturing, or there must be some method of transferring that product to the consumer so that I can get more out of it. One of those three things must occur. Already the cost of living has approached its maximum. I do not believe that, under the present system, it is practicable to purchase much cheaper than we are producing on our farms. The only available avenue that seems left is the one you are approaching — some method by which the selling cost can be made less. Along what particular line you are going to take to solve that difficulty, I don't know. But I am certain of one thing, and that is I wish you Godspeed on your journey. You have made a commencement, and I have no doubt, as I look over the room, that such a body of experienced men will make a substantial start.

Again I congratulate you and thank you for coming to Utica. I trust your stay here will prove so profitable and pleasant that

when you adjourn you will agree to come back, and that you will again come to our city, and always feel with pride you were one of the original cooperators.

Mr. Toastmaster, I thank you.

TOASTMASTER: Cooperation in the state of New York can never be wholly successful without the very active cooperation of the more than 100,000 grangers of the state. We are honored tonight by the presence of the Master of the State Grange — the leader of that vast body of active farmers enrolled as Patrons of Husbandry; and he has come here to show the interest of that great organization in this movement. I have the pleasure of presenting to you Mr. W. H. Vary, of Watertown.

MR. VARY: Mr. Chairman and Gentlemen.— It seems idle to call upon me at this late hour for any remarks, especially after listening to the address of our honored Governor. And I feel, at this time, that you would rather say as the boy did when a speaker arose to speak after a meeting of some length, and the speaker says, "What shall I say?" and the boy said, "Say 'Amen,' and sit down." So that no doubt would please you most. And I will only keep you for a moment or two and say a few words along this line of cooperation, and some things that are not cooperation.

Here is a large body of men come together from all sections of our state to help solve a problem that has been before the people of this country since the world began. Our Governor has taken a firm stand in this matter, and no one doubts his honesty as he speaks to you, and his interest in this matter. I came to the conclusion while he was speaking that he would be pretty good timber for a Patron of Husbandry. I think he must have read the matter that was first promulgated by this order, the principles, nearly half a century ago. This order of Patrons of Husbandry, more than 100,000 strong, (as the Commissioner has told you) has been at work along this line with some success and some failures. And why do we fail? Why, simply because we do not cooperate — that is all there is of it. Now then, if

the consumer and producer did cooperate, and made such an example of it as was made in this room tonight, when 150 men were cooperating and doing the same thing together, we wouldn't have any trouble. They seemed to be of one mind and worked in perfect harmony; but when you come to do a cooperative business, a large number of men say, "Well, I will wait and see how it comes out, and if it is a good thing I will go in with you later." That isn't cooperation. I will give you a little example of that, which happened in a city I know of. They wanted to have a Sunday school parade in the evening, and the churches of the city, the Sunday schools of the city, were invited to cooperate in the movement, and they did, quite generally—all the Protestant churches except one, a good, strong church. But this church said, "Excuse us this year; if it is a success this year, we will come in next year." That isn't cooperation. If I should have anything to do with the matter, I won't let them in next year. Another year I would just punish them. Possibly some of you men here know of similar instances. We found that in a good many cases, in cooperative movements that we have undertaken, there are too many that want to wait.

Now, then, the Governor said in the opening of his speech, the way to cooperate is to cooperate. Well, that is all right; we all agree to that—that is the way the word is defined in the dictionary. I hope that the outcome of this conference (the first one held in this state, if not in this country) will result in a great deal of benefit both to the producer and the consumer. As Mr. Ferris has said, that he put his figures below that of the Governor, thirty-five cents to the producer—no business can stand it. There is something wrong.

Other speakers have said that we have directed all our energies toward increasing production. That is true. But you must do something more than that. I disagree with one speaker that you cannot produce at any less cost; I believe you can, in many instances. But the main cost is the distribution problem, and that is more a city problem than a country problem, or equally as much so. In years gone by there has seemed to be antagonism between the city and the country. It never ought to

have been. But the time has come when those who dwell in the cities, and even in the great city of New York, find it necessary to do something for themselves to lessen the cost of farm products to them. It isn't altogether a country problem, not by any means; I think at the present time the greater burden is on the city. The smaller cities are not affected so much.

And so I say that I hope some benefit will result from this conference. We cannot do it in a minute; but with our leaders, the Governor of this state, the Commissioner of Agriculture, and the man at the head of the cooperative movement, all working toward that end, with your help, it cannot help but be beneficial. And if like lines are followed, in the end both the producer and the consumer will be largely benefited.

I thank you, Mr. Chairman.

TOASTMASTER: We are also fortunate in having present a former master of the State Grange, and at present a distinguished member of the state legislature. I present to you Senator Godfrey.

SENATOR GODFREY: Mr. Toastmaster — I am like the school boy when he first started to school,—he didn't know what he was there for—because I had no intimation that I would be placed at the speakers' table, or expected to say anything tonight, until about five minutes ago, when Mr. Cole said that I would be expected to say something in regard to the subject that we are all interested in.

Now I am not like Senator Ferris here. Although we may call ourselves farmers, I am a real farmer, while Senator Ferris is an agriculturist, because he gave himself away to me a little while ago. We sat down here and began to talk farm; he was talking about the purchasing of supplies and so on. He said, "My wife runs the farm and she may have put in the order." I am inclined to think that she is keeping the books and knows where she is getting her 35 per cent. from, and I think she is doing a little better than that if the real facts were known.

Now, gentlemen, I am deeply interested in this cooperative movement among farmers in the production of their crops and in the disposal of them. I have given the subject a great deal

of consideration, and for the past two years I have been one of the managers of the State Grange Purchasing Agency, and know something about what it is to maintain a proposition of that kind against competition and the obstructionists who are working against us. I have come to consider the matter of selling the farmer's product from a somewhat different standpoint than many.

As I look over this audience I observe that most of the men present here tonight have passed the meridian of life — although as we all get along toward that, or past it, we are inclined to put it off; we think we haven't gotten to it yet. Yet the most of us here have pretty nearly reached it, or passed it. I see but very few indeed of young men engaged in farming who have given it any serious thought, or who have studied agriculture or farming from a scientific standpoint. Now if half of this audience were young men who had been down to Cornell to the agricultural college, or to Morrisville or to Alfred, to our agricultural schools, and they had been studying something about the science of agriculture, as well as the business of agriculture, I believe they would be looking at this from a different viewpoint than many of us older fellows. We did not have education enough when boys to take up a profession or business proposition; we knew very little about business principles, and so we are all up against it as a result. We don't know how to sell our product after we have produced it. We learned how, from experience, to produce the crop, but we didn't know how to sell it. We had fellows living in our neighborhood who would come around just about the time when we got our product ready for market and say, "Well, have you got any potatoes to sell? What do you ask for them?" We would reply, "What are you giving?" We have been letting the other fellow take the goods at their own price and selling them to the jobber or dealer or commission man or wholesaler in the city, and the result is they have been making the money that the farmer ought to have been making.

Now I believe the conditions are changing, and they are going to change only as our successors on the farm — the young men

who are studying agriculture as a business, as a profession — are going to be able to cope with these conditions. And they are going to have a business education, so that they will be able to know how to dispose of their crop after they have grown it; and they have also learned something of the science of growing the crop.

Now I don't believe we are going to gain very much in co-operative selling of our farm products until we are able to produce a crop of a uniform character, so that we can make up a full carload of uniform goods and place it on the market. There is a possibility the time may come when we will organize so that we can have our man at the consuming end of the line to take our product and dispose of it to the consumer, and eliminate some of the expenses of the distribution of our products.

A few years ago I followed a carload of potatoes to New York City; I followed it until it was being retailed to the consumer. And it was the time that potatoes were high; you will remember we were getting \$1 or \$1.35 a bushel, in March. I went to New York and followed it until I found where it was being retailed to the consumer by the truckster at about the same price (a little advanced) as when the farmer was receiving 50 cents for his potatoes in New York. At another time I was in New York when up here in the central part of the state they were paying 15 cents a bushel, and if you remember, there were thousands of bushels hauled out on the farms and there was no market for them, and down in New York they were paying the same price for potatoes as they were paying when the farmer received his \$1.35.

I attended a conference of prominent men in New York City to confer upon that subject, and they were saying that one reason why the farmers were not prosperous was because they were lazy and indolent, and that there was no reason why the farmers should not be prosperous, with the present opportunities. Some railroad presidents and superintendents were there, and it happened to be one of the railroad men that was making this statement against the farmers. I had the opportunity to reply after he had spoken, and I suggested to them that if they wanted to help the situation in regard to the high cost of living, they might

have a sliding scale of freight rates. I cited the instance of potatoes up in the country selling at 15 cents a bushel, and selling at \$1.50 to \$2 a bushel in the market. I suggested to them that they have a sliding scale of freight rates, so that when the crop was cheap in the country they would reduce their freight rate. They said, "The state has legislated against that proposition." "No," I said, "the state has not legislated against your reducing your freight rate, but there is some legislation against your raising the freight rate above a certain price."

I believe the time is coming when our young men who are studying agriculture as a profession will be able to cope with these propositions, and will be able to reach the consumer and dispose of his crops without so many middlemen, or middle profits, as we say, and it won't be accomplished until that time when we are business men and business farmers.

I might say, from a personal viewpoint, that there has never been a middleman, for thirty years, between the product of my farm and the consumer, and I know something about the difference in the price the consumer has paid and what the farmer has received for the crops he has produced and sold to the dealer.

We started the cooperative movement of purchasing farm products for members of the grange two years ago. Through the means of this agency, I believe, and through no other source, the farmers of this state have purchased their fertilizer during the past year at a saving of several hundred thousand dollars, as a result of the State Grange Purchasing Agency, securing and delivering fertilizer to the members of the grange at the price they did.

State Master Vary has said to you that the way to cooperate is to cooperate. He also said that the difficulty is that when we try to bring about the various things we are striving to do, there is a feeling, apparently, "If you make a success we will try it with you next year." Just so long as farmers do not work together and do not have confidence in each other in their dealings, just so long will we have this situation existing. We have men here in this state who are going about for that very purpose — to create dissension among farmers in this cooperative movement. I read only a day or two ago a little item in an implement paper about

the implement dealers condemning and ridiculing the cooperation of farmers, citing the failure down in Pennsylvania of a cooperative movement in their implements, and seeking to create dissension among farmers in this line.

Now, gentlemen, I am not here to take up your time, but I have had considerable experience along this line of cooperation in trade. I believe that the organizing of institutions in the state through legislation, and the making of appropriations for assisting in this work of cooperation, is a splendid thing. I believe that our farm bureaus are going to be one of the great things that will surely help this cooperative movement. It is going to help the farmers—we older fellows who have not got the science of agriculture down in the grey matter of our brains—to produce their crops at a more economical price. And when we can produce potatoes at a few cents less a bushel, we will make more money than we are making today. Experiments which are being tried in my county through the farm bureau are going to be of the utmost value along that line in the near future.

I feel like urging every man in this body here tonight to assist in the greater development of agricultural education—in the development of it in our high schools. We should have it in every high school in the state, so that every boy, whether he be a farm boy or city boy, shall have the opportunity of knowing something about that great industry, agriculture.

TOASTMASTER: We have a number of organizations represented in this gathering, and among them one that to my mind is doing a very valuable work for agriculture in the state of New York. I refer to the Association of Farm Brokers, a body of men that, in a very practical way, cooperating with the State Department of Agriculture, is presenting to the western farmer the agricultural opportunities of New York, and with the result that a very considerable number of practical farmers of the West are coming into the state of New York, purchasing our cheaper farms, our unoccupied farms, and becoming successful New York State farmers. This organization is represented here tonight by Mr. Charles G. Grein, of Buffalo, whom I now present to you.

MR. GREIN: Gentlemen, I will take about three minutes of your time. The first thing I have to say is that we have heard

one great, big speech that will go down in history, that of Governor Glynn. I am an enthusiastic admirer of Governor Glynn from this minute on.

In the state of New York you can get just about the kind of a farm that people want; there are no better farms anywhere than in the state of New York. And the fact that we have 10,000,000 people to eat what comes off these farms, and the fact that all we seem to be troubled now with is a little bit of congestion at the distributing point, is why I believe we are here today.

I have one or two little thoughts that I have to get out of my system. The first thought is this: I believe that through cooperation of the steam railroad with the electric railroad we can get the products of the farm delivered right to the people in town who eat the goods. There is no reason why we shouldn't have switches throughout our cities. There is no reason why our goods should be dumped on a market place to wait for some lazy grocer to go down there to look at the goods for the purpose of going home to telephone some customer that "strawberries are cheap today because they are rotting on the market."

The time is coming when we will have cooperation between the steam railroads and trolley roads. I believe it will be a question of refrigerator cars on all perishable goods, and that thing is coming. I don't think you have to wait for the younger generation to come along; you just have to wait until we get home and think it over.

You heard Governor Glynn say that the prospects were very bright for a flight across the ocean. Just a few years ago "one flight up" meant going up a flight of stairs; today "one flight up" means a flight in the flying machine. And if we can advance that much, can't we advance that much here tonight?

TOASTMASTER: Before bringing this meeting to a close I want to demonstrate to you how thoroughly the citizens of Utica have cooperated with us in this gathering, by presenting his honor, Mayor Smith.

MAYOR SMITH: Mr. Toastmaster and Gentlemen — I am not a farmer nor an agriculturist, but you probably will notice from my size that I am somewhat of a consumer. Usually, my job at

gatherings of this kind is to welcome the delegates to the city; but owing to the fact that I was very busily engaged this afternoon, I was unable to get away; but I understand that our Corporation Counsel, Mr. Merrill, gave you a very warm welcome to our city, and I want to say that I hope your stay here will be pleasant. I trust that tomorrow you will find time to look the city over, and I am sure that if you do, when you return to your homes you will certainly come back here next year and every year hereafter.

TOASTMASTER: I want to thank you all, before we disperse, for your presence here tonight and the interest you have shown in this gathering. I will now turn the meeting over to Mr. Cole, who has some announcements to make in regard to the program of tomorrow before we adjourn.

MR. COLE: The only announcement I have to make, gentlemen, is one that I know you will all like to hear — you are going to have your picture taken. One of the enterprising papers of the town wants to see how these cooperators look. I think it would be a fine thing if every one of you would make an especial effort to be on hand tomorrow, immediately after our morning session. We will adjourn it early enough so we will be sure to have a good light, and we are expected to assemble on the Court House steps. Able and efficient guides will be furnished to escort you thither, and I know you will enjoy this. We will urge the younger generation of cooperators to come with us. I know it will be a great pleasure to point to the picture of some man who is past the meridian of life and say, "That is me, boy; that is what we did at Utica." I hope you will be on hand for that picture.

THIRD SESSION

THURSDAY MORNING, JULY 23.

Meeting called to order by Mr. Cole.

MR. COLE: Gentlemen, I dislike to call you to order so soon after last evening's very pleasurable entertainment, but I appreciate the fact that we want to get down to business as soon as possible. We are trying to keep the meetings as near the schedule as we can and I hope if there are any gentlemen you would like to have here that you will have them located and sent in during the morning.

I want to call your attention to the schedules we have on the tables for this afternoon and to the fact that you must take it upon yourselves to make these round-tables profitable. It is absolutely impossible for us to make a round-table a success unless the gentlemen interested in the subjects under discussion will give the benefit of their experience, and ask all the questions they wish of the men who are interested in the same subject.

The first order of business I think would naturally be the report of the Committee on Resolutions, and if the chairman of that committee has his report ready I should be pleased to entertain it.

MR. J. C. BELLINGHAM: We have here various resolutions submitted by delegates. There are a number approved by the Resolutions Committee. We also have one newly handed in and a majority of the committee have agreed to accept it subject to acceptance by a majority of the convention. It has not received the O. K. of the committee.

1. *Resolved*, That the Superintendent of Cooperation be empowered to appoint a committee of three, to be known as the "Legislative Committee," whose duty it shall be to present to the legislature and the governor of this state a detailed report of this conference, and to bring to the attention of the legislature the necessity of renewing its appropriation for the continuance of the bureau and its activities.

MR. COLE: I am not at all modest, as you have probably found out before this, and so I have no hesitancy in offering this

resolution to you for some action. What is your pleasure regarding this resolution?

It was moved and seconded that the resolution be adopted. Carried.

2. *Resolved*, That this conference expresses a deep sense of gratitude and appreciation to the Chamber of Commerce of Utica, N. Y., and to the citizens of Oneida County for the splendid welcome given to the delegates to this cooperative conference.

It was moved and seconded that the resolution be adopted. Carried.

3. *Resolved*, That it is the sense of this conference that a conference of delegates from the incorporated cooperative associations should be held each year for mutual profit and benefit, and that the next conference should be held in the month of December, 1914, in the city of Utica, N. Y.

MR. COLE: What is your pleasure?

VOICE: Why not change this around and not have it in one place every year? We have already had one meeting here and that will be two in the same year. It looks as though we should distribute this around the state and get more interest in the movement.

VOICE: I believe, Mr. Chairman, we could derive a big benefit from going to other places. Go to Schenectady, for instance. I believe it would be an objective lesson to us. I believe it would be an encouragement to the different members to go to different places and see what is being done. I believe that it should be scattered around from one place to another. I believe when holding it at one place we should vote upon where the next meeting will be held.

VOICE: There is no question but that Utica is geographically the center of the state. It has every claim to that in every conceivable way. However, the questions to be discussed in meetings of this nature are the fruit and produce business of the Empire State. Rochester, for instance, should be considered on account of its tremendous acreage, and the number of men interested in the growing of fruit and produce are located there to a greater number perhaps than in any other portion of the state. I therefore suggest that instead of this convention being

held in one place several times in succession, it should be moved from place to place, thereby increasing the interest. I suggest that Rochester be considered for the next meeting place on account of its importance in every conceivable way.

MR. COLE: While this motion is debatable, the only motion I can entertain is one to amend the present resolution. Any argument now should be toward amending this resolution which has already received the approval of the Resolutions Committee. You should move to amend this resolution in regard to the special city to which you refer.

VOICE: I make a motion that the resolution be amended and the city of Rochester be inserted in the resolution for the next place of meeting of this convention.

Amendment seconded.

MR. BELLINGHAM: My reasons for wishing this amendment voted down are not particularly strong, but the sense of the Resolutions Committee in adopting this and in approving it is the fact that this is our first conference, and, while we have done a tremendous amount of business, still this is only a matter of organizing for future business. Organization is the principal thing in getting these conventions into shape so they can be taken from one place to another. We thought it was quite feasible to hold the second conference in the same city. We recognized this meeting not so much as being a formal convention as one of organization. We have tried to get the organization complete and it does not matter very much where the meeting is held. After the next convention I hope we can move around, but let us have a convention in Utica next time,—let us take the line of least resistance and get thoroughly organized so we will move as a united force from one city to another.

VOICE: The western part of the state is not the only location where people are interested in fruit and other products. I have lived for quite a number of years in the Hudson River valley and I find that some produce is raised there and perhaps Schenectady, Utica or Syracuse would be a central point as between the two places. I can see all the gentleman has said in reference to Rochester, but I do want to call the attention of the meeting to the fact that there is a Hudson River valley and

there are some people living there and we should have a place that is as convenient to us as it is to others — not more so, but equalize it. Syracuse, Utica, Schenectady, are some intermediate points which would perhaps be the most convenient to the greatest number.

MR. COLE: The question is on the adoption of the amendment to the original resolution making it read that the next conference be held at Rochester. All voting in the affirmative are voting to make Rochester the next meeting place.

(Rising vote.) Motion lost.

MR. COLE: The question is now upon the passage of the original resolution, unless there are further amendments.

MR. HARTMAN: I think it is undesirable to come back to Utica next year. I think it is desirable to go to different places. I would not ask you to come to Long Island because of the inconvenience, but Long Island represents one-thirteenth of the agricultural interests of the state. Probably some place in the southern part of the state might be quite as advantageous to hold the next convention.

MR. COLE: You have heard the question on the adoption of the resolution as originally read. I will ask a rising vote.

Resolution carried.

4. *Resolved*, That it is the sense of this meeting that considerable saving can be made by a federation of the cooperative associations of the state for the purpose of ordering supplies collectively directly from the producers and shippers, preferably on specifications and analyses by contract.

MR. COLE: That seems to be an absolutely harmless resolution.

Moved and seconded that resolution be adopted.

Carried.

5. *Resolved*, That it is the sense of this meeting that the Department of Agriculture recommend to any association so desiring the same, a system of bookkeeping as simple as possible to cover the business engaged in by the individual association, with a view toward a uniformity of accounts by all associations.

Moved and seconded that resolution be adopted.

Carried.

6. *Resolved*, That while recognizing the desirability of encouraging every cooperative association to set aside part of its earnings in an educational fund, it is the sense of this meeting that this should be left to the judgment of the association and that the cooperative corporation law should be amended by striking out the clause relating to the mandatory 5 per cent. educational fund.

Moved and seconded that resolution be adopted.

Carried.

7. *Resolved*, That a committee be appointed to investigate the joint purchasing of coal and to get the cooperative associations together for the purpose of lumping their orders.

Moved and seconded that resolution be adopted.

Carried.

MR. COLE: Here is the resolution handed to the Committee on Resolutions, which did not receive its formal approval:

8. *Whereas*, The Wholesale Cooperative Corporation has been organized to assist local societies in the purchase of supplies and in the sale of their products; and

Whereas, a capital is necessary to enable it to render increased services,

Be it Resolved, That the delegates of cooperative societies here assembled, recommend to the societies represented by them that they severally subscribe stock in the Wholesale Cooperative Corporation to an amount equal to one five dollar share for each member of said societies, but in no event shall such subscription be less than \$250; said subscription to be paid in cash, or on such installments as may be mutually satisfactory to the whole-sale and the respective societies.

MR. COLE: This resolution is now open for debate.

MR. BRUCE: I should like to say, Mr. Chairman, that as secretary of the Wholesale Cooperative Corporation in continuation of my statement yesterday I introduced that resolution, because it is evident to me after several months of investigation that the large economies of the movement can only be gained by cooperation. There is no inducement for a private capitalist to advance funds, since they have no interest in either profits or savings. There is, however, every inducement for the societies to advance

such funds. This basis is the basis under which the individual societies work with the cooperative societies in England. It is a means whereby they have raised millions of dollars in the last forty years.

It was brought out very clearly last night in the Governor's address and in other remarks, that there are two things to be done: One is, that the way to cooperate is to cooperate. The other is, that cooperation is a business. The resolution attempts to show a definite means by which you can cooperate and have a business organization.

MR. COLE: There is nothing mandatory, this resolution simply says that the delegates shall recommend to their respective societies.

VOICE: This resolution and plan may be perfectly satisfactory, it may be ideal, but as one delegate here I have not learned sufficient about it to warrant me in recommending anything to my society. We who have come from a distance to attend this conference are entitled to the fullest and frankest explanation. Most of us, in fact all of us, must receive more than we can give from the fund of knowledge which exists in this assembly; therefore, my vote against this resolution is only given because I do not know enough about it.

VOICE: I make an amendment to the resolution: That such societies as want to join, may do so.

MR. GREIN: I would amend the amendment as follows: That the Chair appoint a committee of three or five to investigate the desirability and feasibility of a proposition of this sort and report at our next meeting. I should like to go at this thing a little bit slowly and see a committee appointed.

Amendment seconded.

MR. GREIN: The amendment to the amendment was seconded and that is rightly up now for a vote. I should like to see a committee appointed to investigate this thing and it is only a few months before we will have another meeting. I will include in that amendment that Mr. Bruce be a member of this committee.

MR. COLE: The amended resolution as seconded is:

Resolved, That a committee of five be appointed to report to

the next annual convention of cooperative societies as to the desirability of joining the Wholesale Cooperative Corporation, and that Mr. Bruce be automatically appointed a member of that committee.

Carried.

9. *Whereas*, Large savings can be made in purchasing supplies by buying in large quantities, and

Whereas, The Wholesale Cooperative Corporation is prepared to purchase for the societies,

Therefore, Be it Resolved, That this board of delegates recommend to the several societies represented, that they prepare a tabulation of their requirements in the way of supplies for a period of from three to six months in advance, and furnish this information to the Wholesale Cooperative Corporation.

Moved and seconded that resolution be adopted.

Carried.

MR. COLE: The next order of business is reports of delegates of various cooperative societies. It was first our intention to have each delegate read a report of the business done. The hour is getting late and we have a lot to do, and I know no delegate here wants to listen to just plain figures. Most of us would rather take these figures home with us and when we get a good chance, turn up the light a little perhaps and look them over. I will change the program and will say this: that we will allow reports from these various cooperative companies to be filed with the stenographer and they will be incorporated in the bulletin which we are going to make of the proceedings.

We are not trying to bottle up anything. I will allow a certain length of time after we have discussed these questions for a general discussion, for any man who wants to make five minute remarks about his report.

QUESTION BOX

Does any farmers' cooperative association buy on credit? If so, how do they conduct their business?

VOICE: We usually buy on credit, although most of the bills are discounted. Some are discounted for 10 days, some for 30 days. I do not know whether we have any rating now or not.

MR. COLE: The other question is, "How do they conduct their business?" Do you give any notes?

VOICE: There is one time of year,—in the spring,—when we occasionally have to give notes to enable our patrons to buy supplies. Sometimes they want to buy cows and we take their notes and give a note to the bank; then during the summer when there is milk enough to take up the note, we pay them.

MR. COLE: Does this answer your question? Are there any other associations using credit?

VOICE: I represent the Farmers' Cooperative Association of Mt. Kisco. Its business is mainly selling supplies. As to the matter of credit, we have a standing with the trade whereby we can practically dictate our own terms. We have found that cooperative societies that buy from manufacturers can get credit as soon as they command the business.

I was very sorry to see Mr. Bruce's proposition tabled. If we are to get credit from different organizations, we certainly must expect to give credit to the wholesale organization that furnishes us our supplies. I have no doubt as soon as an organization can do the business and show that they have the men back of it, they can get credit.

MR. PINCUS: We have done considerable business on credit. When we started we had to pay cash, but now we have no difficulty with agricultural implement people, fertilizer people, and even seed houses, as to getting credit. Some require notes of the organization and some collateral notes of the farmers. I raise this question because I want to know the experience of other members in other sections of the state. Occasionally we run across some firms that would not want to deal with us unless it was for cash in advance.

MR. MITCHELL: This is a point we are up against hard right now. We can get all the credit we want from the people from whom we buy. In fact, they offer us credit, but the directors with only a paid-in capital of \$500, and with practically no reserve fund, do not feel that they can take the responsibility of accepting credit from the wholesaler and extending credit to the forty-three different members. If we should contract for five or ten thousand dollars' worth of barrels, the directors assuming that

liability for the association, and if for any reason whatsoever the members did not come and take their barrels, feeling that they had not enough invested to force them to fulfil their contracts, it would leave the board of directors in a very bad position. Every association stands liable to such an accident.

We are looking now for a way to get the benefits of credit and at the same time pass these benefits along to our members, so that, instead of having to pay cash for these barrels in advance or on delivery, the grower can buy them and pay for them after his crop is delivered. We now have to collect from our members 25 per cent. with their order, 25 per cent. on the first of September, and 50 per cent. on the first of November; the jobber competing with us offers them barrels with all the credit they want. They can give him notes and obtain credit for a year if they feel so inclined, at a difference in price of only half a cent.

We are looking for a way by which we can safely extend credit to our members and thereby give them the benefit of credit from our association; and if anybody here has had experience or has a plan by which we can do so as a board of directors who are responsible not only to the members but to the society and to ourselves, without being in a dangerous position, I should like to have some information on that particular problem.

MR. COOK: We have worked out a credit system with our growers which has proved very satisfactory. In the first place, we have a rather stringent contract. All members of the association sign our purchasing contract, whether they purchase spray material, fertilizer, barrel packages, or whatever material we furnish our growers. The contract reads that in case the grower has a satisfactory produce contract with us, he may obtain credit in this way: he may give his note to the association, and the association in turn will endorse his note, place it in the bank and draw the necessary money to pay his first bill. We buy for cash, hence we simply give those growers the opportunity to take any discount there may be. We get a discount from the fertilizer companies for all money paid in before the first of July at the rate of 6 per cent. per annum, and our directors say to the fertilizer companies that they will assume the responsibility of seeing that this is paid. That enables us to obtain credit from the

large fertilizer companies. We bought this year seventeen thousand dollars' worth of fertilizer and sold it on credit. We borrowed \$11,000 on individual members' notes and paid the fertilizer companies in full during July. We have found this system to work very well for the reason that, having a satisfactory contract with the grower, we are safe in conducting our business in that way. He has already contracted his produce with the organization and we also take into consideration in extending him credit whether he is a grower who practices good culture and is likely to make good. If he does not practice good culture, we are not so quick to extend credit to him.

I think that contract will solve this man's problem, if he has a contract with his members whereby they agree to sign up everything they have to be sold through the association.

We also have a buying contract. These two contracts cover everything and both of them are rather stringent. When we first introduced the buying contract, some of the growers disliked it. They thought we were taking away their individual rights. We were simply making possible good business methods and the contract, although somewhat stringent, did not hurt any grower whose intentions were good and who made good.

VOICE: You first make a produce contract by which the grower agrees to sell his produce to you. Do you hold it in any way as a lien upon his note?

MR. COOK: Yes, providing the note is unpaid at maturity, it is so specified in that contract that the note may be paid from the net proceeds of produce sold.

VOICE: Do you manage to sell to your farmers any cheaper than they could buy of the regular dealer?

MR. COOK: We do. We have saved the farmers from \$4 to \$6 a ton on fertilizers, and from \$2 to \$6 on all chemicals.

MR. COLE: Has any other delegate here had experience in selling on credit to farmers who do not do a produce business? I am inclined to think that this is a local problem. I am also inclined to think that it is up to the board of directors to figure out some way. I appreciate that in a great many localities you have to trust the farmer. I do not see why any board of directors should hesitate to take members' notes if a corporation will take

them. Farmers' notes, in my experience, are about the best paper that comes into a bank.

MR. BRUCE: I should like to call attention to the fact that there was a revision of the banking law last winter, and provision was made to permit state banks and trust companies to accept time drafts against that bank up to one year. I am certain that in every community the joint note of several members, or the note of a cooperative society, would get all the money they needed on these terms; that is, a year's credit.

MR. ALLEN: While it is necessary to extend the farmer's credit to a certain extent, I think it is rather bad business methods to encourage credit. I believe there is no habit one is so liable to get into—I mean very many people—as the credit habit, and I believe we should consider some business methods that would prevail upon the people to arrange for these expenses when they come, rather than to extend some method of credit that will encourage their keeping on with it.

MR. BUSH: The last speaker is absolutely right in the proposition that it is unwise to encourage credit. One of the most serious propositions we have to face is this credit proposition. We are dealing with people who as a rule have been in the habit of buying their supplies and paying for them the first of December, or some other time,—with that class of people who, many of them, never take much trouble to prepare for expenses until they come. I think one of the greatest benefits to result from this cooperative movement if handled properly is in getting the farmers and fruit growers into the habit of paying cash. That is a splendid habit.

We took up this proposition in the Eastern this year on fertilizers and other supplies, and our directors decided that it was unwise to extend unlimited credit to our members and buy all this material, for which the Eastern made a contract with the fertilizer companies in the spring and for which it was responsible to those companies. So we put the thing on a cash basis and, very much to my surprise, we had no difficulty in getting the cash for the spray material and fertilizers, and having everything paid up within thirty days. It makes a very clean propo-

sition. The credit proposition should be discouraged and the cash proposition encouraged as much as possible. The credit plan is a very dangerous thing.

VOICE: I should like to put the Hudson River Fruit Exchange on record as doing just what Mr. Bush suggests.

MR. CORBIN: I think perhaps the members might like to take the number of a bulletin on this subject. It is Farmers' Bulletin No. 593, "How to Use Farm Credit."

MR. COLE: I want to tell you one thing, if it had not been for credit we would not any of us be here. Don't tell me about the benefits of buying for cash if I have not the cash. I know many who have not the cash who are perfectly sound risks until fall. I should like to see every farmer buying for cash. I should like to see every one of these companies on a cash basis, but I tell you just as soon as you hamper the business of the world to a cash basis, you shut off 90 per cent. of it. Don't let us raise any question in the business man's mind about credit,— it is the life of trade.

VOICE: Given a county where the only farm products shipped are hay and dairy products, and which has no cooperative association, but has, besides a farm bureau, several subordinate granges that purchase a few farm supplies; how can the farm bureau organize a cooperative produce association, using the various granges as individual units in this association?

MR. COLE: That is a big question. I hope the men here who have had experience in dealing with such units, like the Dutchess county men have had or hope to have, will discuss this question at some length. Whenever you go to organize these companies, there is no place you can go and find the fellows so ready to cooperate as you can in the grange. I should like to hear from the State Master and from Senator Godfrey.

SENATOR GODFREY: Mr. Chairman, relative to the farm bureau engaging in the mercantile business, I believe that is strictly against the rules of the department. The farm bureau may put the members in touch with agencies for the purchase of farm supplies like lime, fertilizer, etc., but they cannot engage — if I understand the rules governing farm bureau propositions,— in the mercantile end of it.

The granges in this state have a state wide agency under the authority of the executive committee of the State Grange, for the purchase of all kinds of farm supplies. As the State Master said last night, all it lacks of being a perfect success, is cooperation. There is no question but that the state agency can be of great value to the farmers who are members of the organization, if they go to this in a cooperative way — no question at all. They all realize that the agency has been the means of cutting the prices of fertilizers to every farmer in the state several dollars a ton.

MR. COLE: I know every granger appreciates all the Senator has said and not only all he says but all he has done.

Organizing these cooperative companies in the granges is not at all contrary to the Senator's personal views. A great many purchasing agents of the granges have approached me and said that it was against the State Purchasing Agency when we organized a cooperative company. The purchasing agent of a grange is up against a hard proposition and not only that but on little local orders he assumes a personal responsibility which the formation of a cooperative incorporation relieves him of. It establishes his business identity as it can be established in no other way. Incorporation is necessary; after they are incorporated they may be called the grange cooperative company or anything else, and not divorce it from the State Purchasing Agent.

I know the Senator understands my position in the matter and I am sure I understand his,— that the value of incorporation to these little cooperative companies is very great. To show you that this is not alone my own personal observation of this work, I will read a part of a letter received by the bureau which is evidently from a purchasing agent of some grange. It explains the attitude of the men toward the purchasing agency:

July 12, 1914.

Commissioner of Agriculture, Albany, N. Y.:

MY DEAR SIR.—I beg to acknowledge receipt of invitation as per reverse side of this sheet. Because of the backwardness of the season, the condition of my farm work and the kind of help I am inflicted with this year, it will be impossible for me to be away from the farm even over night.

I am in entire accord with any practical movement that tends to help the dairy farmer. I have been doing my share of this sort of thing here in my own home town for the last dozen years. I have bought in car lots *every year*

from *twenty to seventy-five* cars of grain and feed for distribution from the cars among my friends and others and haven't gotten enough out of it to reimburse me for my expense in way of postage, telegrams, etc.

My personal services in looking after the unloading of the cars, etc., has too frequently been a "free gratis" performance. Unlike the so-called "State Purchasing Agency" of the grange, I have never charged a percentage for doing the business. I am a thorough believer in "Cooperation" which cooperates in the division of the profits as well as in other things.

And by the same sign I am *not* in favor of any scheme of buying or selling that creates an opportunity for two or three men who may constitute the "purchasing agency" or the "selling agents" to line their pockets.

I regret very much that I shall be unable to attend this proposed meeting in Utica. I am very glad that the Department of Agriculture is fathering the movement and I wish you every success.

VOICE: I should like to ask if the grange cooperative purchasing agency will sell to farmers who are not grangers as cheaply as they sell to grange members.

SENATOR GODFREY: I think I will explain the methods a little more thoroughly. The object of this association was to benefit the order and to build it up. The state of New York has several thousand farmers. We have one hundred thousand members in the state. The grange is the only real farmers' organization in this state that has ever successfully coped with the situation. The granges cooperating through the agency most successfully have been those that arranged with the purchasing agent for compensating him fairly for his business. Some granges have done through the agency thirty-five or forty thousand dollars' worth of business a year, and the purchasing agent has been compensated through the grange for his efforts.

I did not answer the question the gentleman asked. Our business is with the grange alone, but we have arrangements whereby we can quote prices to outside persons.

MR. COLE: We will start the round-table talks this afternoon. I do not expect to have another formal business session except such as is contemplated there. I want to say as a final word to you that my heart is really too full with a sense of gratitude to you men. Nobody knows, perhaps, the trials and problems that the bureau has been up against, and, whether the bureau continues or not, whether the movement dies or not, there is one real cooperator in this state and he has learned it from you, gentlemen.

I thank you for your attention.

FOURTH SESSION

THURSDAY AFTERNOON, JULY 23

ROUND TABLE — ORGANIZATION

W. W. COMSTOCK, WEST BEEKMANTOWN, Leader

MR. COMSTOCK: We have a big cow organization — The Dairymen's League. What will it do, or what has it done?

VOICE: The last word I received from the Dairymen's League was from Albert Manning, Secretary, and he thought they would be in position to do business this fall; that is, for the selling of milk,— simply the shipment of liquid milk.

MR. THOMPSON, Vice-President: That is a hard question to answer in full. We have in the Dairymen's League 185,000 cows, with stock paid up. We represent 185,000 cows. There was a motion made in the directors' meeting months ago that when we had the agreements signed, covering 75 per cent. of the 185,000 cows, we would take up the question of the sale of milk. We are hoping to be able to do it so as to take over the milk perhaps by the first of October. We lack 8,000 cows yet.

VOICE: Is the Dairymen's League incorporated under this new law?

No; under the laws of the State of New Jersey, seven or eight years ago.

VOICE: You have local organizations in many communities. We have several in my county. I understand they are planning to build a plant at Cooperstown. The question in my mind is whether or not that local branch of your association could not be incorporated under this law. Do something, now.

MR. THOMPSON: That would depend on the local conditions. Where there is competition we must have cows enough to represent milk sufficient to have some for sale. This new law, as I understand it, would hardly answer without some further agreement signed by the producers. I find by experience that we must represent a product legally in order to sell it to business men in New York City.

VOICE: When you get your 8,000 cows signed up, what will you do?

MR. THOMPSON: I suppose that is up to the committee having it in charge.

VOICE: It seems to me you ought to know now. You are working in the dark.

MR. THOMPSON: I agree with you.

VOICE: Has the Dairymen's League done anything for the farmer yet,

MR. THOMPSON: Yes, it has been educational.

VOICE: What does the farmer have to pay?

MR. THOMPSON: Twenty-five cents per cow, when he joins.

VOICE: Each year?

MR. THOMPSON: No, when he joins only. It should be every year. That is one trouble, we have not the funds to go on and promote this thing as it should be.

MR. COLE: I have no fault to find with the Dairymen's League. I still think, however, you must have some central organization. I distrust any organization built on the lines of the Dairymen's League, as a business proposition. I have yet to see a contract that even as a farmer I could not shoot a few holes in. I believe as I read their contract I could raise twenty-five questions on the first page that would throw the thing up in the air for two years in the ordinary judicial procedure.

When we are ready for it and have had the experience, then we can undertake these questions. The league is doing a great work. I have not a straw to put in their way. I don't want to conflict with them any more than I do with the grange.

VOICE: Under the new cooperative law they are not compelled to deliver their product.

MR. COLE: You can write any sort of an agreement in their by-laws. Personally, I am of the opinion that a fellow will stick to a contract with his associates and friends longer and better than he will stick to a contract with somebody with offices in New York. I want these men to appreciate my attitude, I am just putting the same acid test on that I am putting on the whole work. You must learn these things right at home in your own neighborhood with your own friends and your cows.

ROUND TABLE — PURCHASE OF FARM SUPPLIES

J. W. PINCUS, NEW YORK CITY, Leader

FERTILIZER AND LIME

Q. Mr. Beyers, are you able to give us any idea of the price of fertilizer, or not? A. I am not.

Q. Can you give us any information regarding the freight, please? A. I can give very little information on that. When I go into the matter of freight rates, it is worse than translating Greek, and it takes a man who is familiar with, and gives all his time to the freight-rate question.

Q. How about the rate on hydrated lime, or lump lime? A. As low as it was before.

Q. The present rate, Mr. Mitchell, excludes that lime entirely, doesn't it? A. Yes.

Q. That is, you say that the present rate excludes the shipment of lump lime to the extent that we cannot afford to use it? A. That is true in practically every section of the state. We can get lump lime for \$4.25. It costs 25 cents additional to put it on the car, which brings it up to \$4.50. There is a further charge of \$1.40 to the center of the county, a distance of 30 miles.

Q. What is the center of the county? A. Milton.

Q. Then you believe it is much more cheaper for you to use the hydrated lime? A. We don't say. We think it is better to use ground lime stone.

Q. I mean in regard to price? A. Not according to the prices we have been discussing here.

Q. What have you been paying for it? A. Five dollars and ninety cents.

Q. Why wouldn't it be just as reasonable to ask the manufacturer to sell cheaper, as to ask the railroad to haul cheaper? A. The chances are they wouldn't do it. We analyzed this question thoroughly and decided to make a reduction on ground limestone, but not on burned limestone.

Q. With a rate of \$1.40 from Fishkill to Millbrook, how much would the rate be increased proportionately? A. Possibly 50 to 75 per cent.

Q. Ground limestone requires larger cars? A. Minimum about

30 tons; lump lime, 15 tons. They have a minimum of 20 tons on ground limestone, but you will find the freight rate on those two commodities quite different as to classification.

Q. How about the freight rate on coal? A. We buy bituminous coal at the mines and pay from \$1.75 to \$2.70 more freight.

Q. This ought not to be. A. I don't know much about that, as it is out of our line. If we would reduce the price on some commodities, more would be used, and at the same time would have to charge a rate justifiable to the movement of the commodities.

Q. How about hydrated lime as to value of other lime for use in the field? A. That is a question probably most discussed of any agricultural question as to the relative value of the different kinds of lime. I would rather have somebody else discuss that question.

Q. Mr. Phelps, what do you think about it? A. You have all the difference in the world. You have 72 to 73 in hydrated lime, 53 to 55 in ground limestone. The question refers to which is the preferable? A. Depends on the price.

Q. What is the rate on nitrate of soda? A. Cannot tell you.

Q. You have no information about how the cars can be made up to take a lower freight rate? A. Don't the fertilizer companies look after that? That comes entirely under the freight department.

Q. Mr. Mitchell, where have you been buying your chemicals? A. From New York and Baltimore. We have for the last four years been transacting business with the Standard Guano Company. They are wholesale manufacturers of acid phosphate and we bought much cheaper. We have sold acid phosphate as cheap as \$9, delivered in New Jersey. We have \$2.50 to add to that. The freight to Jersey would be about \$1.20.

Q. How about other chemicals? A. We bought all chemicals from them. I find, if you are doing a cash business, you can do much better with brokers. Before you get prices from regular dealers, it would pay you to get in touch with some brokers. The exchange or cooperative societies that want to handle mixed goods, of course, cannot buy those goods through brokers.

FEEDS, SEED, ETC.

Who has had any experience in feed here? Prices quoted from Powell & Co. of Philadelphia, follow: New oats at \$38.25; bran at \$22, and oats at \$38.25 and 5 cents higher at Poughkeepsie. They only handle straight carloads. Would make up mixed carloads, but of course can do better from somebody else who makes a business of it. There are 20 tons of bran in a carload.

I have a letter before me from Mr. Coe, of the Allen Milling Co., Poultry & Food Specialists, of Niagara Falls, N. Y., who want to deal with cooperatives. They sent a sample of wheat screening at \$26.50 per ton f. o. b. in 500 pound lots.

Did any of you ever order feed in less than carload lots? Has anybody had any experience with beet pulp? You can get dried brewers' grains and malt sprouts from Farmers Feed Co. of New York City. Prices were quoted at \$19 per ton. It varies at different times of the year. Price of \$25.50 f. o. b. New York is quoted on beet pulp.

Q. Where can you obtain buckwheat middlings? A. From Hecker-Jones Company of Buffalo.

The question has been raised regarding grass and clover seed. What information can we get on that subject? A. We have been paying 20 cents a pound for it. We get our alfalfa seed through an importer, but we specify that we want American grown seed. Nungesser-Dickinson Co. of New York can sell foreign-grown alfalfa very cheap. Of course the American grown is a little higher. They will deal with cooperatives. You can get low prices from them if you buy in large quantities. In buying alfalfa in small quantities, you can get prices from Charles F. Saul Company, Syracuse.

You might be interested in the vetch problem. Winter vetch is cheaper this year than ever before. We have had quotations as low as 7 cents per pound from Nungesser-Dickinson Company, P. O. Box 202, New York City. Q. Is there any choice between foreign and American seed on that? A. There is not very much American seed. Spring vetch is very cheap — bought as cheap as 3 to 4 cents per pound. Winter vetch is sown in Jersey as late as September first up to the twentieth. Taylor Bros., of Camden,

N. J., also quoted low prices. We paid as high as 14 cents for it two or three years ago.

If we could get together some day, we could import vetch direct from Russia and save considerable money. Most of it comes from Germany. In Russia, I understand, it is sold at 2 to 3 cents per pound. It ought to be grown here. I think it would be a paying crop. Some of the people who are growing beans or peas would find that a more profitable crop. Q. What about seed corn or fodder corn? Couldn't we get some of the farmers in New York State to grow some of the seed? A. I wish, as we get organized, we could grow some of the seeds. We have to buy through seed houses and this means through a third hand. You can buy oats and barley direct from farmers in Wisconsin.

Q. What has been your experience in buying seed corn? A. We bought most of our Eureka corn through Ross Bros., of Worcester, Mass., and other seed corn through Stumpp & Walter Co., New York City; also J. M. Thorburn & Co., New York City.

Q. How about seed potatoes? Some of you New Yorkers ought to be able to give us some points. Have any of you had any experience in importing seed directly from Maine? A. They have a state label on every bag, stating that it is free from powder or scab and is permitted to be imported. The state of Wisconsin is making a specialty of seed potato. E. F. Dibble, Honeoye Falls, N. Y., also sells good seeds.

Q. What is the best time to make a contract for potatoes? A. Late in the fall. E. H. Forristall, of Portlandville, Farm Bureau Manager of Cortland County, is organizing the farmers to produce seed potatoes of high quality.

MACHINERY

Q. What has been your experience in getting machinery? Have any of the societies here got quotations on the Buckeye mowers? A. We have dealt with the Richardson Manufacturing Company of Worcester, Mass. They are glad to do business with cooperative organizations.

Q. What would they sell for? A. They have given us a regular agent's price, which is \$36 on a \$45 mower, and if you buy a certain quantity, they will give a discount of about 15 per cent.

for cash. Some concerns will not deal with cooperative organizations. Even with the Worcester people, we have an understanding that we have to sell it at a certain price and we can give back dividends to cooperators. The International Harvester Company prefer not to deal with cooperative companies.

Q. Does the Richardson Manufacturing Company make a lime spreader? A. A very good one.

The Bateman Manufacturing Company (manufacturers of "Iron Age" tools), if we could get a number of organizations combined, would be very glad to handle our business, but where they are only small orders, they would rather refer it to local agents.

The great difficulty in machinery, I find, is the question of parts. We cannot get the parts. We have to get the machine which is being used in our neighborhood, so as to be able to get the parts within a convenient distance.

Q. What has been your experience in grain drills? Have you any preference as to the grain drills in this state? A. There are about a dozen drills sold. "Farmers' Favorite" is one, "Superior" is used here. One difficulty is that the dealers give all kinds of time to the farmers. Among poor farmers, there is a notion that they do not have to pay for the implement until about three years' time.

Under miscellaneous supplies, I should like to know about the spraying supplies; that is, where you can effect a saving by buying arsenate of lead and paris green, if your buy in large quantities. What do you pay for your lime-sulphur? A. We are paying \$6 per barrel; the Hudson Valley Exchange paid \$5.

Q. What do you pay for your arsenate of lead? A. Nineteen cents a pound, dry. There is another brand at sixteen cents a pound. We have been buying chemicals from the Interstate Chemical Company of Jersey City, N. J. It might be worth while to ask for their prices. Also from J. A. Blanchard Co., 50 Church St., New York City.

Q. How about baskets and barrels? A. The price of barrels in Kinderhook is 34 cents.

Q. Where do you get your baskets from? A. Directly from Georgia.

Q. How about peach baskets and hampers? A. The better ones cost about 4 cents apiece.

Q. Can you give us any light on the basket and barrel problems? A. As far as barrels are concerned, we have local men who get them just as cheap as one could get them anywhere else. We are paying 37 cents this year.

Q. Where do you keep your barrels? A. I have buildings where I keep them. At present, I am putting them in a cold storage room.

ROUND TABLE—PURCHASE OF DOMESTIC SUPPLIES

J. C. BELLINGHAM, of the Citizens' Cooperative Supply Company, Schenectady, N. Y., Leader.

Delegates representing the consuming business discussed informally with the producers the marketing of milk, potatoes, apples, cabbages, eggs, etc. The names and addresses of the producers of these commodities were taken for future consideration.

DR. C. D. HUXTABLE, Richfield Springs, N. Y.: Our contract or agreement between ourselves relative to milk commences like this, and I think it would meet your conditions.

"Whereas, the undersigned (blank), herein designated as milk stations, are separately engaged in the business of receiving milk for shipment to New York or elsewhere, by reason of which we are each, separately, put to considerable expense in negotiating contracts for the sale of which, and besides which we are not able to obtain satisfactory prices or terms, by which reason, among others, it is deemed advisable to market said milk through central organizations, etc."

That is probably about all of the contract that would appeal to you.

QUESTION: Can you give us any idea as to what the milk would cost you?

DR. HUXTABLE: The freight from our station to New York is 32 cents a can, that is, for 40 quarts, and it costs us practically 10 cents a can to handle it. We are on the D., L. & W. In going to New York they go through Binghamton. Of course if this thing works, you could get somebody right in Fort Plain or St. Johnsville to supply you with their milk; they have a cooperative creamery. I don't know how much milk you would want.

MR. BELLINGHAM: Let us say here is Rochester, here is Albany, and Schenectady — we represent the nearby cooperative associations. Supposing we three societies enter into a joint agreement to handle this product. Our plan in Schenectady is to bring up the matter of our milk supply at the next meeting. We must obtain from the farmer a guarantee of the quality of the milk and the condition of the farm from which the milk comes, and we may be prepared to meet him with a small increase on wholesale prices sufficient for him to guarantee that the milk supply is up to that standard. We must have that standard all the time, subject to the analysis of our chemist. That is an outline of our plan. What we want is an organization of farmers to meet us on that ground and discuss such matters as prices and methods of shipping.

QUESTION: Do you think it would be possible that there would be enough demand to take the entire output of some farm or organization?

DR. HUXTABLE: Our seventeen stations average 3,000 cans a day the year around — 120,000 quarts a day. Of course dealers claim that the surplus is what causes the price to drop in the summer time, and our idea is to take care of that surplus. When we have more than we wish, certain stations make that into cheese.

QUESTION: Can you easily put in facilities for bottling milk at the station?

DR. HUXTABLE: Yes. A great many stations bottle their milk now. Of course some of these cooperative stations have been doing business ten or twelve years, others have been doing business for less time and some just starting. But we can put in pasteurizers. It costs \$8,000 to \$10,000 to equip a station with pasteurizers, etc. Of course when the milk is bottled, that increases the cost a little. If we send milk to New York it is bottled down there.

VOICE: The ideal condition would be to have the milk bottled on the farm.

DR. HUXTABLE: Yes, if the farmers received enough for their milk; but there is the trouble. Farmers are not so clean as they might be; they have not had the education. They don't know how to be clean, and no matter how strictly we watch our hired men, they don't always keep clean.

QUESTION: At what price do you offer milk shipped in quart bottles?

DR. HUXTABLE: I could not tell you that, because I am not posted. For June we received $2\frac{1}{4}$ cents a quart for milk; you can't make it for that. If we got $4\frac{1}{4}$, that would be all right. I am one of the directors of the Dairymen's League, and we have something like 11,000 stockholders and control nearly 200,000 cows. That is probably 40,000 cans a day, at a low estimate.

MR. BRUCE: That is about $5\frac{1}{4}$ cents laid down, in most places. That means you would have to send your wagons to the freight station.

DR. HUXTABLE: If we ask a bigger price for our milk from Borden's or others, that will increase the price in New York. We are coming to realize that.

MR. BELLINGHAM: Do we understand you that that milk could be delivered in Schenectady at $5\frac{1}{4}$?

DR. HUXTABLE: Yes, sir.

MR. WILSON: Could you tell us the results of your investigations of the bottles?

DR. HUXTABLE: I found that quart bottles bought in gross lots would cost us $3\frac{7}{10}$ cents each, and the pint bottles run just a fraction under 3 cents each.

MR. BELLINGHAM: We don't need to go out and look for our customers in the cooperative. We can route out the milk delivery, because we know who we are selling the milk to. The member comes in and pays his dollar for his supply of tickets, involving practically no commercial waste whatever.

MR. WILSON: How much milk would you require Schenectady to consume in order to get those rates?

DR. HUXTABLE: It wouldn't make much difference. Our committee would have to look after that; they would have to find out from the different places the amount of milk they want. The cost of the milk would be practically the same whether in Schenectady or New York; the freight would be about the same.

QUESTION: Do you also sell eggs and butter?

DR. HUXTABLE: I do not know much about the eggs and butter business, but we could sell butter in the summer time when we are selling a lot of milk.

MR. BELLINGHAM: There is something I don't quite understand. You say you get $2\frac{1}{4}$ cents a quart. It costs us one cent a quart for the railroad—that is $3\frac{1}{4}$. Where does the other come in? What is your price to us on the milk in bottles?

DR. HUXTABLE: The milk not bottled costs about 10 cents a can to handle it in the station, and the freight is 32 cents. But, mind you, this $2\frac{1}{4}$ cents is not what it costs us to make it. This other 2 cents is the cost of making the milk, and a little profit. All we do is to take it to the station and get $2\frac{1}{4}$ cents for that.

MR. BELLINGHAM: The railroad gets one cent—that is $3\frac{1}{4}$. Now the question comes down to this: Is it best that it should be sterilized on the farm or in the city?

MR. BRUCE: The local milk-bottling station is the cheaper, if you are separating that shipment and sending a little to each place; if you can keep a bottling plant going, it is cheaper to send milk by freight as the big companies do. In this way it seems the only practical way is to do it in the country bottling station.

QUESTION: Then the cost of all that is what?

DR. HUXTABLE: About $1\frac{1}{4}$ cents for bottle and $1\frac{1}{4}$ cents extra for shipping. That brings us up to $4\frac{1}{4}$, which leaves it at the other end $3\frac{3}{4}$ cents for delivery to Schenectady. Borden's price for April was \$1.30 per hundred pounds; for May they paid \$1.05 per hundred pounds; for June they paid \$1.00 per hundred pounds. That is a little less than $2\frac{1}{4}$. July, \$1.15 per hundred pounds; August, \$1.30, and September, \$1.40. That was their flat price for what they call "C" grade milk. For "B" milk they give 10 cents extra per hundred pounds.

QUESTION: What would it cost to New York,—about the same price?

DR. HUXTABLE: About the same price. The state is divided off into zones. But that does not make much difference.

MR. BELLINGHAM: Here is a New York delegate interested in fruit.

DELEGATE: We are not thoroughly enough organized yet. We have to work out some plan whereby we can put on the market one standard grade out of the many grades.

QUESTION: In what way could we help the housewives among the grangers?

MR. BELLINGHAM: Our first experience in Schenectady was in teas and coffees. Now other delegates can tell you their experiences.

MR. J. M. DIXON, Brooklyn, N. Y.: Probably some of you gentlemen know that I am the buyer for the Wholesale Cooperative Association, and also the manager of the Glenwood Cooperative Store in Brooklyn. I am interested in buying farm produce, potatoes, cabbage and onions, to be shipped direct to the stores. We are also buying groceries in wholesale quantities, and are glad to furnish groceries to any of the granges at wholesale prices, provided they are bought in case lots. We don't carry any stock; we simply place your order with the wholesale grocer, and bill and ship them to you, which means a saving to the smaller associations of about twenty per cent. We take a very small amount of that — probably one per cent. — for our labor, telephoning, and things of that kind. We are planning to have a building in New York or Brooklyn where we can receive potatoes and cabbage and various kind of farm produce and sell to the other stores, thus saving the farmer the middleman's commission, paying him more for his goods, and selling it to the retailer a great deal cheaper than now. If that store is a success we intend to open up several more in the Bronx, Long Island City and Staten Island.

We would like to get all our goods direct from the producer if we can. I can also speak for the Montclair store and other small stores in New Jersey. We could probably sell good potatoes to these other stores and use a carload at a time.

(Mr. Dixon's New York city address is Wholesale Cooperative Corporation, 63 Wall Street.)

MR. BELLINGHAM: There is one thing, gentlemen, that I want to impress upon you, and that is a square deal. Let us have measure for measure and weight for weight; that is one of the established rules of cooperation.

At this point an informal discussion was held on potatoes, onions and eggs, and the meeting adjourned.

ROUND TABLE—MARKETING OF FARM PRODUCTS

E. W. MITCHELL, KINDERHOOK, N. Y., Leader

MR. MITCHELL: Has any one here sold fruit, apples or pears, through the association?

MR. HEPWORTH, Milton: Yes, sir.

MR. MITCHELL: Tell us about it. How did you arrange for superintending the packing?

MR. HEPWORTH: Our association up to the present time has not done that. Each grower has been allowed to do it. I will tell you both sides of it. As far as our selling was concerned last year it was very satisfactory, but by allowing everybody to pack we got into trouble right away. For instance, we sold a carload of pears. They were to go to Europe. A man gave us at least fifty cents a barrel more than they would net us in New York. Everybody was allowed to pack them. When a car was nearly loaded the bottom came out of a barrel. When the buyer saw that barrel, he took every barrel out of the car, opened them and threw out 200 barrels. The trouble was that the pears had been allowed to get too ripe, and some were not packed as they should have been.

I believe the only successful way is to have a standard pack by the association under their own roof. Let them be packed uniformly, under the supervision of one man.

MR. COOK: We have had two years' experience. This year we are going to make every grower put his stamp and number on the package. This number is registered against his name in the office. We are going to hold several field meetings in the different towns, at which places we will have expert packers to show these men how to pack their fruit properly, uniform as to grade, etc., and then we will have an inspector who will *inspect*, and if they are not up to the standard, the grower will take them home again. We have found that the man who does not have quality fruit cannot pack it. I firmly believe we should have field inspectors whose duty it should be to visit every orchard and inspect fruit. Then they are in a position to know whether a man can pack quality fruit or vegetables. Some men cannot do this because they do not practice good culture. They have not the fruit to make a quality pack.

MR. HEPWORTH: Every barrel of pears in the shipment I spoke about had the grower's brand on it. Every one of these barrels carried the association's stamp besides. If that shipment had ever reached Europe you see what it would have done with us.

MR. MITCHELL: Packing apples or any kind of produce is a skilled job. It is impossible for a man, even if he has good quality, to pack his goods so disinterestedly and so perfectly as a man who has no interest in the outcome. The packer should be absolutely disinterested to make a fair and accurate package. There are many small growers who are up against the proposition of packing apples. They have not enough of any one variety or any one grade to make a showing in the market. The big grower can afford to put up his packing house, he can afford to have his own packer and he can get out a shipment. What we are trying to establish in Kinderhook for the small grower is a central packing house, where the fruit will be sorted by a man who is absolutely ignorant as to whom it belongs. It will all be packed uniformly and if one man has five barrels of greenings and another man has ten barrels, these two can be combined and made fifteen barrels of greenings, which will be more noticeable in the market.

We think the central packing house is something to which we must come. The small grower is the one who must push it. The inspector system is the next best thing, but no inspector can cover any extent of territory thoroughly.

MR. COOK: The central packing house is all right, but it won't do for everything. The grower himself, if he is an intelligent man, is in position to know what constitutes quality.

MR. HEPWORTH: What is this new packing law? What effect will it have?

MR. MITCHELL: The packing law means that in so far as men have the ability, they will pack uniform packages. If all men try to pack under that law they will come nearer to packing uniformly than ever before. I think it is perfectly safe for men to pack under that law as carefully as they can and label their fruit with their own name as the law requires, and in addition put on the name of the association. Then if any individual has disobeyed the law the fruit is traceable, as his name is on the barrel. The packing has been made very uniform by this law. The law

itself is practically what every man who has put up a fancy pack has worked under. It will work very well.

MR. COOK: I think there should be a national law governing all packages. We are having a great deal of trouble in our country shipping grapes into Pennsylvania.

MR. MITCHELL: There is a uniform barrel law.

MR. COOK: I know there is on barrels, but not on baskets.

MR. BRUCE: I should like to make a statement. To sell in the wholesale markets of any city you must have a system of business that will run all the year around. No matter where a society is located, in any section of the country, it does not have a four-seasonal output. It is only a one-seasonal output. That makes it impracticable for a single society to enter the market. I have been investigating therefore along the lines of the central corporation, acting for its members with a view to leasing quarters in the Wallabout Market, the West Washington Market and in the Bronx. I investigated the retail grocers' exchanges which buy in carload lots for their members, and I find that on these perishable farm products we cannot deal with them directly. They want the pick of the market. That means that the central corporation would have to lease cold storage facilities. I believe it would be necessary to have societies as far south as Texas, in order to occupy quarters the year around. I find that for about \$100 a month a place large enough to do considerable business can be rented in these wholesale markets. If that expense were distributed over fifty societies, for instance, each one agreeing to contribute so much per month, you would have a self-sustaining organization which would always be in the market.

I know the carrying out of that plan would require an agreement on the part of a great many societies, since it would have to be sustained at all events to make it financially successful. I talked with a gentleman yesterday who had had about twenty years' experience in handling that sort of business. He said he thought something of that kind could be started with a capital of about \$10,000,—that it should have resources of about \$100,000 to make it a really effective force. To me it seems that it would be comparatively easy to get cooperation among the societies to carry out that plan.

MR. HEPWORTH: Why not have local cold storages to take care of this stuff?

VOICE: Because in January and February you will have 1,000 barrels of apples in Albany with no market, while New York will have a top market; and every barrel you send down will be frozen stiff.

MR. HEPWORTH: Why not hire cold storage in New York City? I have done that. This year we are talking of hiring a room or two or three rooms in some of the large storehouses, and even have our agent go down there next winter and sell these things.

MR. MITCHELL: When your agent goes down there, they won't buy because their regular dealers can supply them with all the goods they need all the year. They will say, "I can't leave my jobber."

MR. BRUCE: That is the reason I proposed some organization to do a year-around business.

MR. HEPWORTH: Suppose we do not send our own man down there, but turn the goods over to a commission man. I did that with my fruit last year.

MR. MITCHELL: Your selling idea is good, but it will be hard to get the societies. What we must do is to go back to the farm, look the proposition squarely in the face and put our packing facilities in such shape that we can pack the stuff.

MR. BRUCE: A small cold storage plant will cost more to run than a larger one. On the other hand, you have the advantage of doing your work in the country where rents are cheaper, and, after all, your outlay might be less on that account.

MR. HEPWORTH: There is another advantage this home refrigeration would have,—we could pack our fruit in crates, put it in these cold storages and then during the winter hire experts to pack the stuff. It might not be practical in western New York. I have reference more particularly to apples.

MR. MITCHELL: Can we have cooperative cold storages?

MR. HEPWORTH: Why not? There is no reason why we cannot. We are talking about it. Along the Hudson river we have a peculiar condition, we are having trouble to get land near the shipping points.

REPORTS OF COOPERATIVE SOCIETIES

WHOLESALE COOPERATIVE CORPORATION—ITS HISTORY, PLANS AND PURPOSES

HORACE V. BRUCE, Secretary

An examination of the evolution of cooperative development in all the countries of the world where cooperation has gained a foothold—and this includes all civilized nations—shows that the cooperative movement, wherever started, has about the same life history.

Rising prices and increasing difficulty in making ends meet leads to investigation, and the conclusion reached as a result of such investigation has quite generally been that cooperative effort offers the only certain means of relieving the economic pressure on the daily life of the people.

Agitation and propaganda, in many cases carried on by the state or with state aid, has been universally followed by the organization of distributive stores—the agency nearest the people. When a considerable number of such stores are in successful operation, they federate to form a wholesale cooperative. The wholesale cooperatives, acting in the beginning as purchasing agencies, expand as rapidly as capital can be accumulated into manufacturing organizations, producing for the consumer the things with which he supplies himself through the local cooperative store.

Until cooperation reaches the manufacturing stage, its path is generally strewn with difficulties and many of the local units go to pieces before they have grown strong enough to buffet the business seas unaided.

Characteristics of the movement everywhere is wild enthusiasm followed by the formation of a multiplicity of societies; and the tendency to demand of the movement its maximum economies from the very beginning, with an unwillingness to create capital by allowing the savings to be applied to capital account. Price cutting leads to destructive competition with private traders, surplus of poorly organized societies fail, and the whole movement soon finds itself in a hopeless morass of disappointment, recrimination and despair.

In other countries cooperators have learned these lessons and profited by them. The cooperative movement is aggressive and solvent in every civilized country of the world except the United States. We can guide ourselves by the mistakes of Europe, and, if we do not, we deserve to fail.

In view of all the above facts, it was apparent from an examination of the distributive movement in the Eastern States, that the societies already organized were in a precarious condition, that failure was the rule and not the exception, that the societies were working in isolation and that unless something was done at once to correct this condition, the whole cooperative impulse given by increasing economic pressure would die out and might not be revived for another generation. To attempt to check this tendency, and furnish a refuge for new societies, the wholesale corporation came into being.

Limitations of money, and the difficulties attendant on getting delegates together from distant points, confined the effort to societies geographically near together, and the wholesale started with the following stores as members:

Montclair Cooperative Society, Montclair, N. J.

Glenwood Cooperative Store, Brooklyn, N. Y.

Postal Employees Cooperative Society, Brooklyn, N. Y.

American Cooperative Society, Elizabeth, N. J.

Flushing Cooperative Society, Flushing, L. I.

Ridgewood Supply Co., Ridgewood, N. J.

Bedford Farmer's Cooperative Association, Mt. Kisco, N. Y.

In addition to cooperative societies, the following gentlemen interested in the promotion of cooperation, consented to act as directors for the first year, until other societies could be invited to participate and designate persons to represent them:

Hon. Seth Low,

Wm. Church Osborn,

Charles A. Austin,

David W. Ross,

Albert Sonnichsen,

Horace V. Bruce,

The wholesale corporation was duly organized under the cooperative law of the State of New York, with a nominal capital of \$5,000, of which the minimum required by law was paid in. The following officers were elected from among the directors, as required by law, to serve until their successors shall have been elected: Alfred A. Stuart, President of the Glenwood cooperative Store, President; Emerson P. Harris and Howard F. Keiper, Presidents respectively of the Montclair Cooperative Society and the American Cooperative Society of Elizabeth, Vice-Presidents; Thomas Conyngton, of the Montclair Society and Charles E. Lawrence of the Glenwood Cooperative Store, respectively Treasurer and Assistant Treasurer, and Horace V. Bruce, Secretary.

At the first meeting of the incorporators, Messrs. Harris and Bruce were appointed a committee to draft a proper notice of the incorporation and organization of the wholesale with an invitation to cooperative societies in the East, so far as known, to become members. This notice was as follows:

“The Wholesale Cooperative Corporation has been organized under the cooperative law of New York, copy of which is herewith attached, by a number of cooperative societies, public spirited citizens and philanthropic associations for the joint purchase of supplies, and for the mutual benefit of its members.

“Attached hereto, you will also find a copy of the certificate and bylaws of this corporation which will explain how this organization and its business are to be conducted.

“Any cooperative society, and the members thereof may become stockholders of this corporation by subscribing \$5 for each share of stock purchased. A subscription blank is herewith enclosed.

“We hope that every cooperative society in this vicinity will become a stockholder in this wholesale corporation in order that the benefit of combined action may be secured. A separate statement outlining the practical work which the cooperative wholesale hopes to undertake, accompanies this letter.

“It is essential to the security and growth of the wholesale that societies should put themselves in a position to pay cash or give suitable guarantees for the payment of all goods ordered through the wholesale.

“Further information as to details or as to any matter which suggests itself to you and is not explained herein, may be secured by applying to the corporation.”

The statement of practical work referred to above is as follows:

PRACTICAL WORK OF THE WHOLESALE COOPERATIVE CORPORATION

This company organized under the cooperative law of New York, aims to be of the utmost help and usefulness to the local cooperative stores in this vicinity and that usefulness will depend largely upon the extent of the cooperation of the local stores. The practical objects include the following:

FIRST.—Helping the local stores in their buying.

(a) Distributing as promptly and as often as possible facts and figures as to quotations and purchases made by the different local stores or the wholesale.

(b) Concentrating the purchases of the local stores of such articles as coffee, tea, butter, eggs, flour, cheese, etc., and thus getting a lower price than it would be possible for an individual store to get, although, the goods would be sent directly to and charged to the local store.

(c) In buying together, members could get special brands of dried fruits, canned goods, etc., to be bought directly from the cannery at prices as low as possible to obtain, consistent with proper assurances as to quality. It is believed that very material savings can be made in this.

(d) Joining in buying at auction, oranges, lemons, grape fruit, etc., these to be sent direct to the stores. Helping the stores in the matter of efficiency and economy by comparing methods, plans, practice, results, etc., of the different stores to the end that expenses of operation may be reduced to the lowest point consistent with reasonable service to the members.

SECOND.—Aiding the stores as to the adoption and installation of proper accounting methods which should combine economy with the production of the information necessary to intelligent management.

THIRD.—Either directly or through a specific educational organization, to furnish the stores with literature for the education of members and the promotion of membership and the general support of the cooperative idea.

Not all this can be done at once. It is the purpose to start out with practically no fixed expenses and employing an experienced buyer for only occasional half days, thus, at the outset, giving help to the stores which from the beginning should be worth more than it costs and as time goes on these services should be worth more and more in excess of what they cost the local stores.

This company is strictly cooperative and needs every help it can get from the local stores and hopes to give results two for one, even at the outset. We ask your store to at once become a member, taking as many shares as you feel able to, later taking more as the central movement justifies itself.

The invitation to participate was sent to seventy cooperative societies in New York, New Jersey and New England. Of these four became stockholders. In three of these cases stock was subscribed for by some individual interested in the society. At about the same time a request was sent to all the above societies for a tabulation of their purchases for the month of January, 1914, in order to ascertain the combined purchasing power of the cooperative movement in the East. Such a tabulation was furnished by five of those circularized, two of these being philanthropic organizations.

From the failure to respond to the invitation of the wholesale to become members of it, it was apparent that something was wrong. An investigation showed that several causes were operating to retard the growth of the wholesale. These causes were found to be briefly three:

1. Many of the societies were on the brink of financial failure and unable to extend any assistance. Since January of this year, not less than ten societies in New England have closed their doors, and eight in New York and New Jersey.

2. Lack of understanding as to the advantages to be gained by creating a wholesale society. The energy of the local societies is still largely taken up with local organization.

3. Lack of confidence in the integrity of the organizers of the wholesale, due to an unfortunate error in drawing the certificate of incorporation. This error has since been corrected and the bylaws amended in certain respects, at the request of certain societies.

To these three causes should be added the fact that many nationalities are represented in the cooperative societies, particularly among the consumers. Finnish, Swedish, Lithuanian, Polish, Italian, French, German, and English societies are working out this problem side by side with the native American population. The Jewish people have made more progress than any of the others and they have a number of well organized societies. The German movement is growing rapidly and is efficient, as the Germans are accustomed to team work and understand the principles of cooperation.

Other causes have doubtless contributed to the delay in carrying out the plans for strengthening the wholesale. Delegates from societies are kept away from conferences because of the expense of attendance. All the established societies have trade relations which they hesitate to change. Few of the societies understand the principles of cooperative business. In every instance the managers have laid greatest stress on the immediate lowering of prices as a condition of trading. Cooperators in other countries have discarded this principle, and keep prices up to ordinary trade levels, paying back in dividends on trading any excess paid in over expenses. This plan keeps both the local society and the wholesale supplied with cash for emergencies. At least nine-tenths of the failures have been caused by failure to provide a surplus for seasonal changes in trade and unexpected losses due to bad management and other local causes.

It is a matter for the highest congratulation that the state, through its very efficient Department of Agriculture, has undertaken the task of promoting business relations among the socie-

ties. This cannot fail to have beneficial results in the near future. As the principles of cooperation are better understood, and the people learn to spend more time in cooperating than in examining the motives of their fellow cooperators, the business side will increase in the volume of its transactions and the economic purpose of cooperation begin to become apparent in better food, clothing and living conditions generally for the masses of the people.

Since its organization in January, 1914, the wholesale has accumulated much valuable information as to sources of supply, prices, business methods and useful information generally. It has demonstrated that it can buy directly from producers and sell directly to consumers and that both parties to the transaction are benefited thereby; the producer by saving his selling expense, and the consumer by buying at lower prices than ever before. If the wholesale had the combined purchasing power of the solvent societies behind it, it would be doing a business of at least \$1,000,000 per year at a cost of not more than 5 per cent. as a maximum and on many lines of not more than 1 per cent.

To save buying and selling expense the impulse must emanate from the society to the wholesale. If the societies adopt the wholesale as their purchasing agent, they must send in their orders unsolicited and be prepared to pay cash promptly. Every postage stamp, telephone call, letter or other expense unnecessarily imposed on the wholesale comes out of the pocket of the societies trading with it.

The wholesale is organized under the same law that the local societies are. If it accumulates any funds in excess of expenses such savings must be divided among the societies in accordance with the volume of purchases. Its directors or officers can be changed at the will of the stockholders.

The following statement shows the total amount of business done by the Wholesale Cooperative Corporation from June 2, 1914, the date of the first transaction, to July 31, 1914, sales, purchases and gross profit:

	June	July 1-15	July 16-31	Total
Sales	55.46	255.85	390.92	702.23
Purchases . . . . .	.....	.....	.....	672.07
Gross profit				<u>\$30.16</u>

We hereby certify that the above statement is correct.

ECKES, FITZGERALD & DEAN,
 Certified Public Accountants,
 141 Broadway, New York, N. Y.

**BEDFORD FARMERS' COOPERATIVE ASSOCIATION, MOUNT KISCO,
 N. Y.**

RUSSELL H. RAWLINGS, MANAGER

Bedford Farmers' Cooperative Association was organized as a stock corporation in May, 1909, and began doing business on July 1, 1909, with a capital of \$2,000. On May 31, 1914, it had a capital of \$25,000, and a total turnover of \$109,000. A member is a holder of one or more shares of stock, which sells at par value of \$10.00 each.

The comparison of the members, paid up capital, and sales of supplies follows:

	Stockholders or members	Paid in capital	Sale of supplies	
July 1, 1909.....	5	\$2,000		
May 31, 1910.....	25	3,500	1909-1910	\$27,000
May 31, 1911.....	62	8,515	1910-1911	44,000
May 31, 1912.....	120	21,000	1911-1912	60,000
May 31, 1913.....	142	25,000	1912-1913	87,000
May 31, 1914.....	148	25,000	1913-1914	99,000

The above figures indicate the growth of the association.

The various departments are as follows:

Trading Department, handling farm supplies, machinery, tools, implements, seeds, fertilizers, automobiles, automobile supplies, coal, feed, and other supplies as a local dealer.

Automobile Trucking Department, operating a three-ton truck.

Fruit Department, maintaining a fruit expert similar to county farm bureau agent, for the development of fruit growing. He furnishes reports on orchards and farms, consults with farmers

at a nominal cost, and on contract superintends the care of fruit trees, and spraying and pruning of trees.

Help Bureau, acting as representative of a licensed help bureau.

Manufacturing Department, owning a cider mill and apple evaporator, to buy the waste apples of the farms in this section at a cash value, f. o. b. station.

Members Produce Exchange. The association runs a column in the local paper which is just being tried out, advertising a list of such articles for sale in this section that members may report, without charge for advertising. A charge of 10 per cent. is made, however, on goods actually sold by members to parties inquiring of us for goods so listed.

The advantages that the members have over the public are:

1. Our fruit department does work only for members.
2. Earnings over six per cent. on capital stock are to be returned pro rata to members in accordance with business done.
3. We advertise free in the Members' Produce Exchange for members only.

Our selling prices are fixed by the market prices. We have tried to establish a scale of prices in this section on a basis of moderate profit.

The following tables show the results of our business for the year ending May 31, 1914.

BEDFORD FARMERS' COOPERATIVE ASSOCIATION

BALANCE SHEET AS AT MAY 31, 1914

<i>Assets</i>		
Cash in bank and on hand.....		\$1,461 85
Accounts receivable	\$16,636 52	
Less: Reserve for doubtful accounts and discounts	294 18	
	<hr/>	16,342 34
Stock in trade:		
Inventory, certified by treasurer.....	\$6,624 57	
Bags and barrels.....	186 38	
Stationery, supplies, etc.....	265 80	
	<hr/>	7,076 75
Prepaid insurance, etc.....		709 54
Automobile and auto truck:		
Cost, to date.....	\$2,253 65	
Less: Reserve for depreciation.....	210 00	
	<hr/>	2,043 65

Orchard outfit:

Cost, to date	\$919 08	
Less: Reserve for depreciation.....	126 00	
		<u>\$793 08</u>

Furniture and fixtures:

Cost, to date.....	\$779 57	
Less: Reserve for depreciation.....	15 00	
		<u>764 57</u>

Buildings and machinery:

Cost, to date.....	\$19,034 81	
Less: Reserve for depreciation.....	334 77	
		<u>18,700 04</u>

Real estate, at cost.....		<u>4,102 25</u>
---------------------------	--	-----------------

\$51,994 07*Liabilities*

Accounts payable	\$10,458 65
Bills payable	10,000 00
Prepaid stock subscriptions.....	3,940 00

Share capital:

2,500 shares, of \$10 each, authorized and issued.....	25,000 00
--	-----------

Profit and loss account:

Profit for year, as per annexed account....	\$3,216 63	
Deduct: Deficit May 31, 1913.....	621 21	
		<u>2,595 42</u>

\$51,994 07

NOTE.—25 per cent of this year's profit is due to certain employees under resolution of the Board of Directors.

PROFIT AND LOSS ACCOUNT

FOR THE YEAR ENDED MAY 31, 1914

Last year

\$90,874 16	Sales (less returns and allowances)	\$109,271 49	
81,818 13	Cost of sales.....	97,460 51	
			<u>\$11,810 98</u>
\$9,056 03	Gross profit, as per schedule.....		172 20
	Commission on sales of apples, etc.....		1,880 00
	Received for use and occupancy insurance....		<u>\$13,863 18</u>
\$6,136 46	Deduct: Expenses	\$8,011 66	
1,259 41	Discount	568 46	
408 30	Interest	904 96	
			<u>9,485 08</u>
\$7,804 17			<u>\$4,378 10</u>
	Allowances on 1913 accounts		<u>52 28</u>

\$1,251 86	Profit for the year.....	\$4,325 82
5,934 65	Less: Fruit department. Loss as per statement	1,109 19
<hr/>		<hr/>
*\$4,682 79	Net profit for year.....	\$3,216 63
<hr/>		<hr/>

FRUIT DEPARTMENT ACCOUNT

FOR THE YEAR ENDED MAY 31, 1914

Contracts for care of orchards:

Receipts.....	\$1,355 38	
Expenses.....	1,249 62	
	<hr/>	\$105 76
Spraying and expert services.....	\$636 67	
Maintenance and depreciation of sprayers.....	192 18	
	<hr/>	444 49
Delivery receipts, Ford auto.....		44 65
		<hr/>
		\$594 90
Expenses:		
Salary of expert.....	\$1,007 65	
Insurance.....	60 75	
Letters and miscellaneous.....	42 41	
Maintenance and depreciation of auto.....	593 28	
	<hr/>	1,704 09
		<hr/>
Net loss for the year.....		\$1,109 19
		<hr/>

DUTCHESS COUNTY COOPERATIVE ASSOCIATION

CHARLES C. MITCHELL, PRESIDENT.

This association was initiated early in the winter of 1914 by a group of farmers and market gardeners in the vicinity of Poughkeepsie. The primary purpose was to enable the members to market their produce to better advantage, and in the discussions at the several meetings which were held in February and March, it was decided to invite the farmers from several local groups throughout the county, who had already been purchasing carloads of lime, cattle feed and fertilizers through their local granges, to participate. It was considered advisable to secure the advantages of better prices and more economical operation incidental to entering the market as a purchaser of relatively large quantities through a single responsible head, and to get used to working together in the joint purchase of supplies before under-

*Deficit.

taking collective sale of the members' produce. A temporary organization under the Cooperative Corporations Law was effected about the middle of March, at which time incorporation papers were made out, signed, executed and transmitted to the Secretary of State.

On April 11, 1914, a permanent organization was effected and thirteen directors, president, vice-president, secretary and treasurer elected, and standing committees appointed.

The general policy agreed upon was to encourage the several local groups throughout the county to operate relatively to the Dutchess County Cooperative Association in a manner similar to the relation existing between the several states and the federal government, so that each group has the advantage of united buying and selling power of the others and at the same time a considerable degree of independence in its local affairs.

The capital stock amounts to \$1,000, made up of two hundred \$5.00 shares, of which \$500 is paid into the treasury. There are at present 45 members in good standing and 11 applications for membership.

BUSINESS DONE

Owing to the lateness in incorporating the association and the requirement that \$500 be paid into the treasury before business could be commenced in the name of the corporation, the members have done their purchasing in an informal way through their local groups up to the present time, and, not counting the business done through the grange purchasing agents in these groups, the following amount of purchases have been made:

67½ tons of fertilizer chemicals.....	\$1,597 25
35 tons ground limestone.....	87 50
40 tons bran	930 00
3,000 bushels oats.....	1,237 50
10 bales binder twine.....	46 25
	<hr/>
	\$3,898 50
	<hr/>

This material has been distributed to the members at cost plus 1 per cent. commission to the association, leaving an asset of \$38.98.

EXPENSES

The expenditures of the association to date are as follows:

Printing and postage.....	\$12 00
Incorporation papers, fees, seal, stock certificates and books..	25 00
	<hr/>
	\$37 00
	<hr/>
Balance.	\$1 98
	<hr/>

BALANCE

Although this business has not been transacted in the name of the association, the expense of the printing and incorporation has been assumed by the local groups.

KINDERHOOK POMOLOGICAL ASSOCIATION, INC.

L. L. MORRELL, PRESIDENT

The Kinderhook Pomological Association was formed September 5th, 1910, with a limited membership of twenty. The meetings were held once a month at the homes of the members, the afternoons being spent in the field discussing problems of production, and the evenings in transacting business, together with an educational program.

For three years the association was conducted on these lines, showing a gross annual business of \$2,000, \$3,000 and \$5,000.

The principal objections to this form of association were individual liability of each member for the debts of the association, the cumbersome method of doing business in open meeting, and the difficulty of extending our advantages to outsiders and increasing our business so that we could afford to hire a manager.

In December, 1913, we incorporated under the new law, making our association open to all, and retaining the educational features of open meetings by having stockholders pay annual dues of \$3 to support these meetings. It was further extended so that farm partners or members of the immediate family of a stockholder were enabled to attend the educational meetings by the payment of annual dues and upon the recommendation of such stockholder.

We have 43 members, holding 47 shares of stock, making \$235. Reserve fund, \$47. This gives us a working capital of \$282.

On this capital of \$282, we have done \$6,899.09 of business at

an expenditure of \$113.15, and an estimated profit of \$125 to the association, and at a great saving to our members.

The association is working along conservative lines, so far not having sold any produce for our members, and we still continue to lay particular stress upon the educational work of the association.

The work is done by the directors, without compensation, and the only expenditures have been for office supplies and postage.

FARMERS' COOPERATIVE COMPANY OF ONEIDA COUNTY, INC.

W. M. OSBORNE, PRESIDENT

This company was organized in February, 1914, with a capital of \$10,000, divided into five-dollar shares and one dollar per share to be paid into the surplus fund, thus making each share cost \$6.

We have 54 stockholders who have subscribed for 2,142 dollars' worth of stock.

It was practically the first of April before we began doing any business, too late to get much fertilizer business, which should be one of our largest accounts. Our total sales to date are about \$5,000, our sales consisting of fertilizer materials, mixed fertilizers, hop twine, binder twine, lime, seeds, feed, etc. Up to the present time it has cost about 10 per cent. of sales to do business, but a large part of our expenses might really be charged to missionary work, as the cost of printing circulars, postage, traveling expenses, etc., has been quite heavy for the volume of business we have done.

According to reports received from customers we have saved from 10 to 15 per cent. on their purchases. One of the greatest difficulties we have to contend with is that most farmers are used to obtaining credit, and in fact it would seem as though a great many of them must have credit. It is therefore very hard to do a cash business, and it would seem that our company, at any rate, will have to make some provision for extending credit to our customers.

GLENWOOD COOPERATIVE STORES, INC.

JOSEPH M. DIXON, MANAGER

The Glenwood Cooperative Stores, Inc., are located at 1602-1604 Newkirk Avenue, Brooklyn, N. Y. They incorporated in May, 1912, with a capital of about \$2,500; stock being sold to subscribers at \$25 per share. They deal in groceries, meats, fruits, vegetables, etc. Gross amount of business for year ending July 1, 1914, amounts to \$45,771.46. Gross profits average 20 per cent., total operating expenses, including rent, payroll, etc., about 16½ per cent. The stores are in a prosperous condition and are patronized by about 75 per cent. of the shareholders and general public. Practically all groceries are purchased through the wholesale cooperative corporation; fruits and vegetable are purchased direct from the producer whenever possible. While the stores sell all merchandise at a fair profit and do not indulge in price cutting, they save the residents of their vicinity anywhere from 10 to 15 per cent. on meats and groceries, besides giving full weight and honest measure to all.

SARANAC VALLEY CREAMERY CO. OF CADYVILLE, N. Y.

W. J. ROACH, MANAGER

The Saranac Valley Creamery Co. was organized in 1907 as a cooperative company. The authorized stock is \$6,000, of which 345 shares of ten (10) dollars each have been disposed of.

The company purchased a factory at Saranac, N. Y., which was owned by Lyons & Hovey and operated by them under the whole milk system. Since acquiring the property the company has built a new factory and changed to the cream gathering system, each patron using a hand or automatic separator.

The company hires teams to gather the cream, it having been found cheaper than to own teams for this purpose.

A charge of 3 cents a pound is made for making the butter (except two remote routes where 4 cents is charged), out of which the running expenses are paid, the overrun or churn gain going to the patrons; this varies from 14 to 18 per cent. and usually overcomes the charge for manufacturing.

The cream is tested semi-monthly and patrons are paid

monthly; the financial business is done through a local bank without expense to the company. The following statement shows the business done during the year 1913:

Number pounds cream received.....	498,000
Number pounds butter made.....	138,403
<hr/>	
Total receipts for year.....	\$40,404 92
Total disbursements to March 15, 1914.....	40,186 97
<hr/>	
Surplus March 15, 1914.....	\$217 95
<hr/>	

The manager is required to report the financial condition of the business to the stockholders annually on the second Wednesday of March. Such report shows in detail the receipts and disbursements during each year. Much has been said at this conference in regard to a more uniform system of accounting. I am glad to say that the system used by the Saranac Valley Creamery Company is accurate and as simple as accuracy will permit. Any information which I might give the conference committee that has been appointed to investigate systems of accounting would be gladly given.

SCIPIO PATRONS SUPPLY COMPANY

E. L. HOWLAND, TREASURER AND MANAGER

The Scipio Patrons Supply Company is an incorporated co-operative grange organization doing business at Merrifield, N. Y.

We conduct a general store, that is we carry a full line of groceries, boots and shoes, harness extras, horse clothing, and men's coarse clothing. The saving on tea and coffee alone, which we handle for this section, is over \$300 a year. By way of explanation I will say that we have a storehouse for fertilizer, a grain elevator (capacity 8,000 bushels), a coal trestle that will hold 400 tons, and a general store with living apartments. Since our organization we have added a tin shop and hardware store, putting in steam heaters and furnaces and all kinds of roof and eave trough work. We handle over 600 tons of fertilizer a year, besides car lots of grain, feed, hay, salt, cement, coal, shingles, posts, lime and binder twine; also tillage implements and extras.

We commenced business in November, 1909, and at our annual meeting in 1910 the managers' report showed the amount of busi-

ness done to be \$40,715.76. In 1913 the report showed \$86,692.10. Each year we declare a dividend of 6 per cent. on all stock sold, the balance of the profit going into the business. Our stock was sold at \$10 per share, and November 1, 1913, was worth \$16.80 a share.

REPORT OF BUSINESS FOR THE YEAR ENDING OCTOBER 31, 1913

Sales of general merchandise.....	\$57,555 59
Sales of fertilizer	8,380 49
Sales of grain	20,756 02
Total sales	<u>\$86,692 10</u>

Assets

Bills receivable.	\$191 19
Cash	2,135 80
Merchandise, inv. stock and accounts due.....	12,497 40
Fertilizer, inv. stock and accounts due.....	6,741 81
Real estate	6,000 00
Furniture and fixtures	1,255 80
	<u>\$28,822 00</u>

Liabilities

Bills payable	\$11,200 00
Due December 1 on fertilizer.....	8,042 87
Due on merchandise	2,054 06
	<u>21,296 93</u>

Present worth	<u>\$7,525 07</u>
---------------------	-------------------

Number of shares of stock issued to date at \$10 per share....	448
Present value of stock per share.....	\$16 80
Insurance on stock and buildings.....	12,500 00

RITCHEY COOPERATIVE MANUFACTURING AND SUPPLY COMPANY,
INC.

R. H. RITCHEY, BUSINESS MANAGER

It is unnecessary for me to go into the details of cooperation, since many of you know far more about that than I do. However, I will say for the benefit of those who contemplate the forming of a cooperative society that we obtained information on cooperation in Chicago, Ill., Madison, Wis., Washington, D. C., Manchester, England, and last but not least, the state department at Albany. Before we incorporated we did not have the benefit of Mr. Cole's department because I, at least, did not know that such department existed.

FORMATION OF COMPANY

I wish to make a few apologies for what might seem unsound tactics for a cooperative society. When the present enterprise which the cooperators of Albany are now interested in was begun it was started by an individual for an individual, but at the last moment some of the financial arrangements fell through, causing the individual, our present business manager, to abandon his plans. On coming to the attention to a number of Albanians they considered the plan feasible and we incorporated as the "Ritchey Cooperative Manufacturing and Supply Company," under the laws of 1913, and went ahead with the plans to establish a retail ice business for ourselves. Our endeavor to complete and fill our ice house last winter is the cause of our obligations, which all except one are held by members of this cooperative society.

WHAT WE HAVE DONE

We incorporated November 27, 1913, with 109 members. Shares are five dollars each, and each stockholder is entitled to one vote, regardless of the number of shares held. The board of directors are elected for one year. Our regular business meeting is held the first Monday of each month at 605 Broadway, Albany, and everyone interested is invited to attend.

We own one acre of land on the Normanskill Creek, and have graded a site on which we have erected an ice house, 60 feet wide, 100 feet long, and 30 feet high, single boarded. We also have ice wagons, ice plows, snow plows, and a quantity of other tools.

FINANCIAL STATEMENT

Total receipts	\$2,360 16
Total disbursements	2,359 41
	<hr/>
Cash on hand	\$0 75
	<hr/>
Outstanding bills	\$175 16
Outstanding notes	411 21
	<hr/>

On April 13, 1914, the members decided to start in the grocery business, so fifty pounds of coffee and two chests of tea were purchased and retailed from the homes of two of our members.

Owing to a demand of our members in Rensselaer we are now retailing groceries in that city as well as in Albany. We are paying no rent or salary, all services being volunteered. The number of articles on sale has increased from three to forty-three.

FINANCIAL STATEMENT

Groceries sold	\$138 94
Groceries on hand.....	102 65

We make a profit of 11 cents on the dollar, and do a strictly cash business both in buying and selling.

By the time this report is in the hands of our members, we should resume work on our ice house, install machinery and be prepared to harvest the first crop of ice this season. In order to do this we must raise a small amount of money. If each of us will take one more share of stock, five dollars, together with what new members wish to subscribe, it will be sufficient to complete our business and put us on "Easy Street." This is of utmost importance to every member of this society and should receive their strict attention so that we will not be caught unprepared as we were last season.

CITIZENS' COOPERATIVE SUPPLY COMPANY, SCHENECTADY, N. Y.

ROBERT K. WILSON

After months of propaganda this company was incorporated, December, 1912, but the work of education was continued for some months longer.

On May 10, 1913, with a membership of fifty, we started to do business with a limited supply of tea and coffee, selling to our members from the home of one of our directors. Our first week's business amounted to \$10.20.

At the end of two weeks we felt the need of new quarters and an office was rented on the third floor in one of the business blocks on State street. From that time we began to add non-perishable goods to our stock, as they were called for by the members.

Our business kept growing and by the end of October we were again obliged to move into larger quarters situated on Liberty

street. After a month in our new store we found it necessary to hire a clerk to keep the store open all day. On December 1 a woman clerk was hired. Up to this time our help had been entirely voluntary. A tribute is here given to the men and women who gave unsparingly of their time to the building up of the co-operative movement in Schenectady.

Our business continued to increase and by the end of February we found it necessary to hire a manager and a young man for delivery clerk. Up to this time our delivery of goods had been done on Saturdays, but with the hiring of a delivery clerk and the buying of a horse and wagon we divided the city into zones, delivery in each zone being on alternate days, thereby bringing the cost of delivery down to the minimum.

By the end of May we had again outgrown our quarters, and moved to 150 Barret street, a step from the street railway waiting room where all city and suburban cars pass. Since moving to our present quarters we have found it necessary to add still another clerk, and each succeeding month sees our business growing and expanding, as you can see by the brief statement included herewith of the quarterly reports for the past year.

Our shares are five dollars each. One may become a member on the payment of fifty cents entrance fee, the remainder of the share to be paid at twenty-five cents per week. One man one vote, irrespective of the amount of shares held, is a part of our bylaws and is strictly adhered to.

The names and addresses of those trading with us are taken and when dividend is declared they are credited with one-half dividend which goes toward paying for share of stock. Our object is to make everyone who trades a cooperator, getting him to realize that as part owner he has as much interest in our success as every other member, making possibly a propagandist who goes out and talks of the benefits and ideals of cooperation.

Another feature of our work is the educational. When a request for information comes from any group of people our educational committee gives an illustrated lecture showing the growth and development of the European movement, finishing up with a short talk on what we are doing here in Schenectady.

Another thing we realized was the need of interesting all members of the family, so a woman's guild was formed, whose purpose is to bring the wives, mothers and daughters together for the exchange of ideas and the forming of study clubs, to make the home better and advance the cause of cooperation.

SUMMARY OF QUARTERLY REPORTS

Quarter ending September 30, 1913

Sales	\$1,081 94
Stock in store	432 61

Membership, 133; paid interest on capital stock of 3½ per cent and dividend on purchases of 4½ per cent.

Quarter ending December 31, 1913

Sales	\$2,715 48
Stock in store	944 62
Balance in bank	199 60

Membership, 211; making possible 4 per cent interest on capital stock and 6 per cent dividend on purchases.

Quarter ending March 31, 1914

Sales	\$4,834 19
Stock in store	911 11
Balance in bank	929 54

Membership, 298; making possible 4 per cent interest on capital stock and 8 per cent dividend on purchases.

Quarter ending June 30, 1914

Sales	\$6,250 61
Stock in store	1,478 28
Balance in bank	556 29

Membership, 363; making possible 4 per cent interest on capital stock and 7¼ per cent dividend on purchases.

DETAILED REPORT FOR QUARTER ENDING JUNE 30, 1914

Resources

General stock on hand as per inventory of June 30	\$1,478 28
Cash in till	178 82
Cash in bank, check account	377 47
Cash in bank, interest account (reserve fund)	67 01
Schenectady Illuminating Co., deposit for current	10 00
Store furniture and fixtures, horse, wagons (2), harness, etc.	255 00

Office furniture and supplies, safe, etc.....	\$45 50
Educational fund — due this account from Educational Committee.....	50
Expense account — due this account from advertising.....	32 00

\$2,444 58

Liabilities

Capital stock, outstanding	\$1,662 53
Reserve fund, on deposit Schenectady Trust Co.....	67 01
Interest and dividend due members.....	159 47
Undivided profits (approximately 7¼ per cent on purchases).....	555 57

\$2,444 58

Receipts

Cash on hand April 1st in bank and till.....	\$929 54
General stock sales.....	6,250 61
Capital stock sales.....	340 39
Entrance fees	39 00
Miscellaneous collections	32 12
Advertisements in price lists.....	73 60
Educational Committee	13 39

\$7,678 65

Disbursements

General stock purchases.....	\$5,462 87
Capital stock canceled.....	47 25
Store furniture and fixtures, horse, wagons, harness, etc....	349 70
Office furniture and supplies, invoice forms, stationery, etc....	49 45
*Expenses — rent, help, delivery, price lists, etc.....	826 81
Educational fund — Educational Committee, etc.....	23 25
Dividends paid	293 63
Balance on hand (till and bank).....	623 30
Miscellaneous — L. and G.....	2 39

\$7,678 65

*Detail of expenses on file at the store.

LIST OF DELEGATES REPRESENTING INCORPORATED COOPERATIVE ASSOCIATIONS OF THE STATE OF NEW YORK AT THE FIRST STATE CONFERENCE, UTICA, N. Y.

<i>Name:</i>	<i>Address:</i>	<i>Association:</i>
Allwood, J. D.	Westmoreland, N. Y.	Westmoreland Cooperative Association.
Ayers, D. H.	Trumansburg, N. Y.	Cayuga Lake Orchards.
Bartholomew, A. D.	Whitehall, N. Y.	Whitehall Cooperative Association.
Bellingham, J. C.	Schenectady, N. Y.	Citizens Cooperative Supply Company.
Brainard, C. G.	Waterville, N. Y.	Farmers Cooperative Association of Oneida County.
Bruce, H. V.	New York City	Wholesale Cooperative Association.
Bush, S. J. T.	Morton, N. Y.	Eastern Fruit & Produce Exchange.
Clinch, G. W.	Westmoreland, N. Y.	Westmoreland Cooperative Association.
Cockburn, F. M.	Silver Creek, N. Y.	South Shore Growers & Shippers Association.
Comstock, W. W.	West Beekmantown, N. Y.	West Beekmantown Creamery Association.
Cook, S. J.	Silver Creek, N. Y.	South Shore Growers & Shippers Association.
Cottam, H. G.	Wappingers Falls, N. Y.	Dutchess County Cooperative Association.
Crawford, F. J.	Hudson Falls, N. Y.	Glens Falls Cooperative Association.
Damelang, G.	New York City	American Consumers Association of New York.
DeWitt, E.	Germantown, N. Y.	Germantown Cooperative Association.
Fitch, A. L.	Westmoreland, N. Y.	Westmoreland Cooperative Association.
Grein, C.	Buffalo, N. Y.	New York State Farm Brokers Association.
Harris, E. W.	Waterville, N. Y.	Farmers Cooperative Association of Oneida County.
Hartman, M. P.	Medford, L. I.	Suffolk County Pomona Grange.
Hartshorn, W. S.	Plattekill, N. Y.	Plattekill Cooperative Association.
Hepworth, J. A.	Milton, N. Y.	Hudson River Fruit Exchange.
Howe, D. F.	Utica, N. Y.	Oneida County Farm Bureau.
Lacy, F. H.	Poughkeepsie, N. Y.	Dutchess County Cooperative Association.
Locke, E. G.	Waterville, N. Y.	Farmers Cooperative Association of Oneida County.
McGinnies, J. A.	Ripley, N. Y.	Chautauqua & Erie Grape Company.
Mitchell, C. C.	Millbrook, N. Y.	Dutchess County Cooperative Association.
Mitchell, E.	Kinderhook, N. Y.	Kinderhook Pomological Society.
Mueser, E. O.	Salt Point, N. Y.	Dutchess County Cooperative Association.
Osborn, W. M.	New Hartford, N. Y.	Farmers Cooperative Association of Oneida County.
Ostrander, D. W.	Clintondale, N. Y.	Clintondale Cooperative Association.
Palen, H. O.	Highland, N. Y.	Hudson River Fruit Exchange.
Parke, L. A.	South Dayton, N. Y.	South Dayton Cooperative Association.
Pincus, J. W.	New York City	Federation of Jewish Farmers of America.
Rawling, R. H.	Mt. Kisco, N. Y.	Bedford Farms Cooperative Association.
Richards, M. O.	Whitesboro, N. Y.	Oneida County Farm Bureau.

LIST OF DELEGATES—Continued

<i>Name:</i>	<i>Address:</i>	<i>Association:</i>
Ridings, H. L.	Waterville, N. Y.	Farmers Cooperative Association of Oneida County.
Risley, C.	Waterville, N. Y.	Farmers Cooperative Association of Oneida County.
Ritchey, R. H.	Albany, N. Y.	Ritchey Cooperative Manufacturing & Supply Company.
Roach, W. J.	Cadyville, N. Y.	Saranac Valley Creamery Company.
Roberts, A.	New York City	Industrial & Agricultural Cooperative Association.
Seaman, J. H.	Glens Falls, N. Y.	Glens Falls Cooperative Association.
Sessions, F. W.	Utica, N. Y.	Farmers Cooperative Association of Oneida County.
Terry, O.	Waterville, N. Y.	Farmers Cooperative Association of Oneida County.
Thomson, F. H. ...	Holland Patent, N. Y. ...	Farmers Cooperative Association of Oneida County.
Turnbull, J. B.	Utica, N. Y.	Farmers Cooperative Association of Oneida County.
Ward, M. J.	Unadilla, N. Y.	Unadilla Cooperative Association.
Wilson, R. K.	Schenectady, N. Y.	Citizens Cooperative Supply Company.



SERIES I., PLATE NO. 1.
EARLY CRAWFORD.
Normal Foliage and Fruit.
 $\frac{1}{2}$ Natural Size.



SERIES I, PLATE NO. 2.
EARLY CRAWFORD.
First Year Yellows.
 $\frac{1}{2}$ Natural Size.



SERIES I., PLATE NO. 3.
EARLY CRAWFORD.
Natural Foliage.
 $\frac{1}{2}$ Natural Size.



SERIES I., PLATE NO. 4.
EARLY CRAWFORD.
First Year Yellows Foliage.
 $\frac{1}{2}$ Natural Size.



SERIES I., PLATE NO. 5.
EARLY CRAWFORD.
Second Year Yellows Foliage.
 $\frac{1}{2}$ Natural Size.



SERIES I., PLATE NO. 6.
EARLY CRAWFORD.
Third Year Yellows Foliage.
 $\frac{1}{2}$ Natural Size.



Fig. (a).

Fig. (b).

SERIES I., PLATE NO. 7.

Fig. (a). Wire-like shoot with narrow leaves.

Fig. (b). One of a clump of wire-like shoots.

$\frac{1}{2}$ Natural Size.



SERIES II., PLATE No. 8.
BLACK CRAWFORD.
Normal Foliage and Fruit.
 $\frac{1}{2}$ Natural Size.



SERIES II., PLATE No. 9.
BLACK CRAWFORD.
First Year Yellows.
 $\frac{7}{8}$ Natural Size.



SERIES II., PLATE No. 10.
BLACK CRAWFORD.
Second Year Yellows.
 $\frac{1}{2}$ Natural Size.



SERIES III., PLATE No. 11.
DEWEY.

Natural Foliage.
 $\frac{1}{2}$ Natural Size.



SERIES III., PLATE NO. 12.

DEWEY.

First Year Yellows.

$\frac{1}{2}$ Natural Size.



SERIES III., PLATE NO. 13.

DEWEY.

Second Year Yellows.

$\frac{1}{2}$ Natural Size.



SERIES IV., PLATE No. 14.
Normal Elberta Foliage.
 $\frac{1}{2}$ Natural Size.



SERIES IV., PLATE No. 15.
ELBERTA.

First Year Yellows.
 $\frac{1}{2}$ Natural Size.

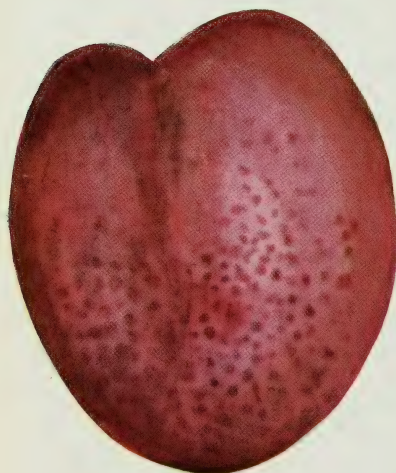


(a) Premature.



(b) Normal.

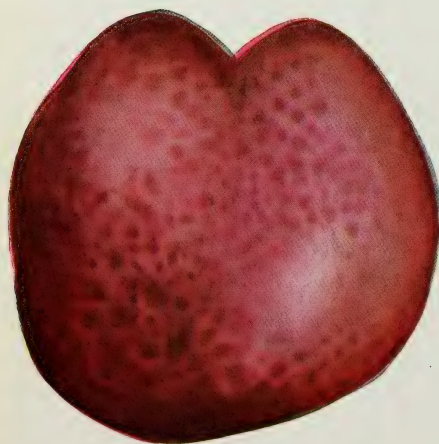
ELBERTA.



(c) Prematures.



(d) Normal.
STEVENS RARE-RIPE.



SERIES V., PLATE NO. 16.
Premature and Normal.
Natural Size.

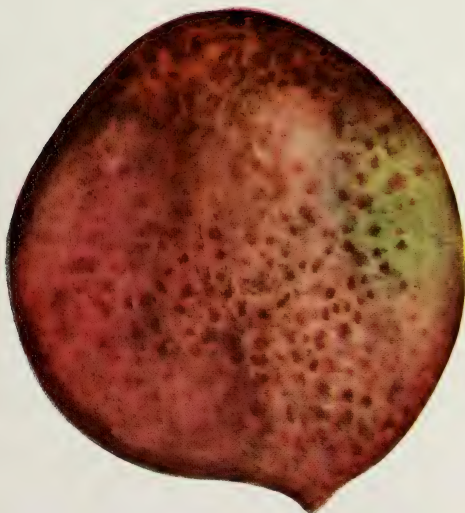


(e) Premature.



(f) Normal.

EARLY CRAWFORD.



(g) Premature.



(h) Normal.

WHEATFIELD.

SERIES V., PLATE No. 16-A.
Premature and Normal.
Natural Size.



(a) Premature.

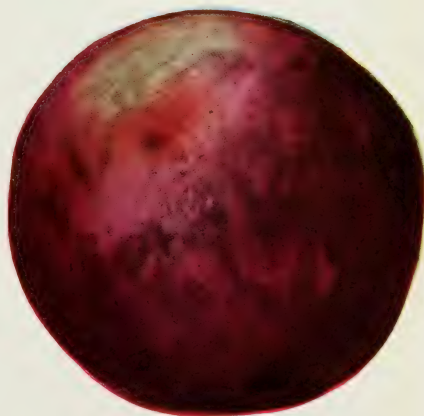


(b) Premature.

SURPRISE.



(c) Premature.



(e) Normal.



(d) Premature.

BLACK CRAWFORD.
SERIES V., PLATE No. 17.
Premature and Normal.
Natural Size.



BLACK CRAWFORD.



FOSTER.



ST. JOHN.

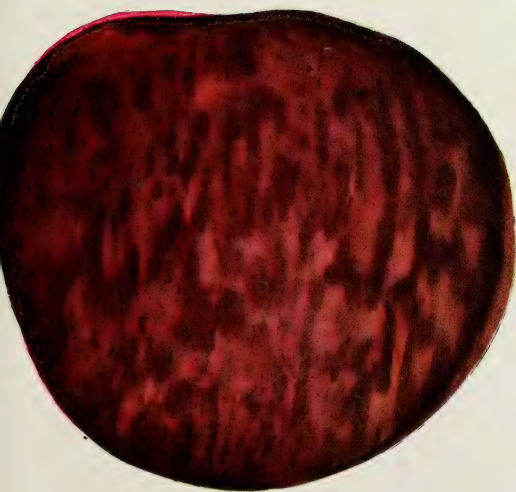


GRAVES.

SERIES V., PLATE NO. 18.
VARIOUS VARIETIES.
Normal Colorations.
Natural Size.



CARMAN.



DEWEY.
SERIES V., PLATE NO. 18-A.
Normal Colorations.
Natural Size.



(a).

PLATE No. 19.

The two general types of peach foliage:

(a) ELBERTA.

(b) CRAWFORD.

$\frac{1}{2}$ Natural Size.

(b).



SERIES VI., PLATE No. 20.
Normal Elberta Foliage.
 $\frac{1}{2}$ Natural Size.



SERIES VI., PLATE No. 21.
ELBERTA.
First Year Little Peach Disease.
 $\frac{1}{2}$ Natural Size.



SERIES VI., PLATE NO. 22.

ELBERTA.

Second Year Little Peach Disease.

$\frac{1}{2}$ Natural Size.



SERIES VI., PLATE No. 23.
ELBERTA.
Third Year Little Peach Disease.
 $\frac{1}{2}$ Natural Size.



SERIES VI., PLATE No. 24.

ELBERTA.

Fourth Year Little Peach Disease.

$\frac{1}{2}$ Natural Size.



SERIES VII., PLATE NO. 25.
EARLY CRAWFORD.
Normal Foliage.
 $\frac{1}{2}$ Natural Size.



SERIES VII., PLATE NO. 26.
EARLY CRAWFORD.
First Year Little Peach Disease.
 $\frac{1}{2}$ Natural Size.



SERIES VII., PLATE NO. 27.
EARLY CRAWFORD.
Second Year Little Peach Disease.
 $\frac{1}{2}$ Natural Size.



SERIES VII., PLATE NO. 28.
EARLY CRAWFORD.
Third Year Little Peach Disease
 $\frac{1}{2}$ Natural Size.



SERIES VII., PLATE No. 29.
EARLY CRAWFORD.
Fourth Year Little Peach Disease.
 $\frac{1}{2}$ Natural Size.



SERIES VIII., PLATE No. 30.
NIAGARA.

Normal Foliage.
 $\frac{1}{2}$ Natural Size.



SERIES VIII., PLATE NO. 31.

NIAGARA.

First Year Little Peach Disease.

$\frac{1}{2}$ Natural Size.



SERIES VIII., PLATE No. 32.

NIAGARA.

Second Year Little Peach Disease.

$\frac{1}{2}$ Natural Size.



SERIES IX., PLATE No. 33.

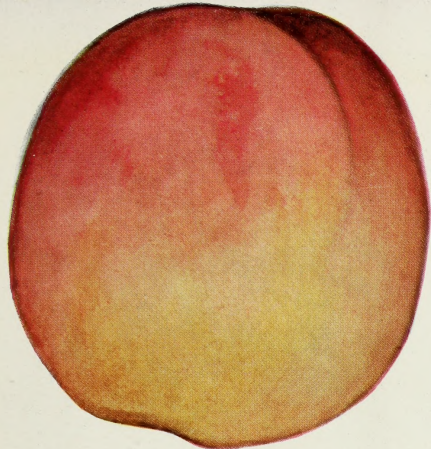
STOCK.

Normal Foliage.

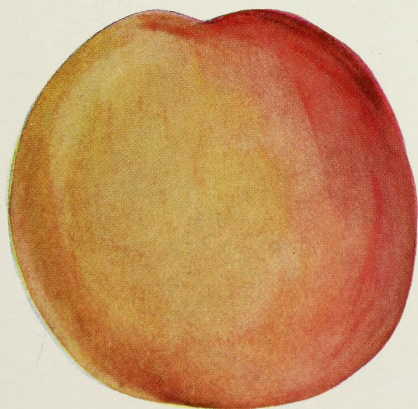
$\frac{1}{2}$ Natural Size.



SERIES IX., PLATE NO. 34.
SMOCK.
First Year Little Peach Disease.
 $\frac{1}{2}$ Natural Size.



ELBERTA.



EARLY CRAWFORD.

PLATE NO. 35.

The effect of Little Peach Disease on the fruit of Elberta and Early Crawford.
Natural Size.

Colored plates to accompany Bulletin 61, page 1717

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